ORDER

1320.58A

INSTRUCTIONS FOR WRITING NOTICES, MAINTENANCE TECHNICAL HANDBOOKS, AND SYSTEM SUPPORT DIRECTIVES

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U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

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RECORD OF CHANGES

DIRECTIVE NO. 1320.58A

CHANGE TO BASIC	SUPPLEMENT			OPTIONAL	CHANGE TO BASIC	SUPPLEMENT			OPTIONAL

FAA FORM 1320-5 (6-80) USE PREVIOUS EDITION

FOREWORD

This order establishes procedures and guidance to personnel in preparing maintenance directives for systems in the National Airspace System (NAS).

The Director of Operational Support (AOS) has mandated that all new systems, and those that are not scheduled for replacement by May 01, 2002, will transition their current Electronic Equipment Modifications (EEM), Plant Equipment Modifications (PEM), Site Program Bulletins (SPB), and Site Technical Bulletins (STB) to the new documentation types covered within the System Support Directives (SSD) which includes System Support Modifications (SSM), System Documentation Releases (SDR), and System Technical Releases (STR).

This order provides specific instructions for the preparation and release of AOS documentation for equipment and facilities in the form of SSMs, SDRs, STRs, Maintenance Technical Handbooks (HBK), and Notices (NOT).

The change over to the new documentation type was completed by June 1, 2001. The SSD number is mandatory and shall be used to initiate and track the directive. As an option, for EEMs being converted to SSM documentation, the Office of Primary Interest (OPI) may choose to use the current EEM numbering scheme in addition to the SSD number. The use of the optional EEM number will be phased out NO LATER THAN June 2003. AOS-20 is responsible for publishing a System Support Directive Checklist. The checklist will be in the form of a National Order. The checklist will be published semi-annually and will be distributed nationally, informing the field of the current level of documentation of all systems.

Gregg W. Dvorak
Program Director for Operational Support

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CHAPTER 1. GENERAL

100. **PURPOSE**. This Order provides the guidelines for issuing system hardware, software, technical data, and facility modifications for which Operational Support (AOS) is responsible. This Order shall also be used as the primary guideline for preparing and formatting System Support Directives (SSD), maintenance technical handbooks, and notices.

101. **DISTRIBUTION**. This Order is distributed to regional and division levels in Airway Facilities and Offices of Communication, Navigation, and Surveillance Systems; to division level at the Logistics Center and the Academy at the Aeronautical Center; to branch level in ATC Engineering and Test Division and the National En Route Automation Division at the Technical Center; and to all Airway Facilities field offices with a limited distribution.

102. **CANCELLATIONS**. Order 1320.58, Equipment and Facility Directives – Modification and Maintenance Technical Handbooks, dated December 17, 1993, is cancelled.

103. **EXPLANATION OF CHANGES**. Extensive revisions to this Order have been made to incorporate the SSDs, and to clarify outdated requirements contained in the existing Order. Chapter 3 entitled, Preparation of Equipment Modification Directives, has been deleted along with all accompanying appendixes. A new chapter 3 entitled, Preparation of System Support Directives, has been added along with accompanying appendixes.

104. **BACKGROUND**. In order to consolidate the various formats and processes used to deliver bulletins and software/hardware modifications, the format of Electronic Equipment Modifications (EEM), Plant Equipment Modifications (PEM), Site Program Bulletins (SPB), and Site Technical Bulletins (STB) have been merged into the SSD. The SSD consolidates the formats and style of these documents and provides new guidelines for their distribution. The SSD will maintain the data content of EEMs, PEMs, SPBs, and STBs.

105. **FORMS**. Refer to Appendix 1, DOT/FAA Forms Listing, for a list of forms and their availability. Examples of forms required to issue a handbook as a directive can be found in the latest version of Order 1320.1, FAA Directives System.

106. **REVIEW/UPDATE OF MAINTENANCE DIRECTIVES**. AOS will review/update all maintenance directives every 3 years. This review will include maintenance technical handbooks. Since maintenance technical handbooks are baselined, changes can only be made through the National Change Proposal (NCP) process. All data pertaining to standards, tolerances, maintenance schedules, and certification, contained in the maintenance technical handbooks take precedence over those contained in instruction books if different.

107. **SCOPE**. The information contained herein is applicable to AOS directives only, and augments the general standards governing the organization, preparation, and revision of directives as contained in Order 1320.1.

108.-199. **RESERVED**.

CHAPTER 2. PREPARATION OF MAINTENANCE TECHNICAL HANDBOOKS

SECTION 1. GENERAL

200. **OBJECTIVE**. This chapter provides detailed guidance for preparing maintenance technical handbooks. It contains administrative and technical information on guidelines, procedures, standards, and instructions.

201. **HANDBOOK AUTHORS**. National System Engineering Division (NSED) personnel (AOS-200/300/400/500) will prepare the content for maintenance technical handbooks. Technical documentation within the scope of this chapter may be produced by other organizations on assignment, such as a selected regional office, or, in special cases, by contractors.

202. **MAINTENANCE SOURCE DATA AND COORDINATION**.

a. **Source Data**. The content of maintenance technical handbooks is based on the experience, knowledge, technical accuracy, suitability, and completeness of AOS engineering, program management, regional offices and field technical personnel. The documentation engineer will take the initiative to use every available source for requesting documentation changes. The engineer must include any Electronic Facility Instructions (EFI) and Plant Facility Instructions (PFI) in the maintenance technical handbooks.

b. **Coordination**. Maintenance technical documentation contains procedural information and guidance that interests or affects the business, program, or functions of other independent organizational activities. The following procedures must be followed in contacting these organizations:

(1) These organizations must be consulted at an early stage in the planning and preparation of material (see Appendix 2, Sample Notice of Intent to Publish a Major Handbook Revision).

(2) Early coordination and participation in providing source data by field personnel and any other users are mandatory.

(3) The NSED will send a Notice of Intent to publish a new maintenance handbook or a major revision of an existing handbook.

(4) The Notice of Intent will request comments from all regional Airway Facilities (AF) divisions, field offices (FAF-0 distribution code) which include the System Management Offices (SMO) and other selected offices.

(5) The Notice of Intent comments from the field offices will be consolidated by the appropriate regional AF divisions and sent to the NSED.

(6) Submission dates will be adjusted to accommodate the complexity of the subject and the desired publication date for the handbook.

(7) Sixty days will be allowed for AF SMOs to submit recommendations to regional AF divisions.

(8) Thirty days will be allowed for the regional AF divisions to collect, consolidate, and provide input to the NSED.

NOTE: The 90 days cited include ALL mail delays, etc. Based on information on hand, plus that furnished by the regions, the handbook will be prepared and issued with no further clearance by the regions.

c. **Critical Changes**. Changes involving extremely critical operational matters, or those involving safety will be issued by the fastest available manner. Such changes will normally be made by General Notice (GENOT), notices, or a minimal scope handbook, and followed by appropriate permanent documentation or a full-format handbook.

d. **Sample Notice.** A sample notice of intent to publish a major handbook revision is included as Appendix 2. This notice should be used to advise concerned offices of the intent to revise a technical handbook. The standard paragraphs given are to be included in each notice. The originating office may include additional paragraphs or append explanatory or background material that will assist recipients in preparing their recommendations.

203. **DISTRIBUTION.** Maintenance technical handbooks are distributed under the subject/category item numbers indicated by the latest edition of Order 1720.30, Distribution of Airway Facilities Technical Directives.

204.-205. **RESERVED.**

SECTION 2. GENERAL REQUIREMENTS

206. **GENERAL.**

a. **Organization.** As a general rule, the maintenance handbook organization specified in paragraph 207 is directly applicable to electronic and electro/mechanical equipment and system handbooks. These handbooks shall use the chapter, paragraph, and subparagraph titles shown, with the exception that a chapter for flight inspection will not be required in handbooks where there is no requirement for flight inspection. There may be occasions when the handbook organization shown will have to be modified to meet individual subject requirements. Additional major topics may be added, as necessary. Certain non-equipment handbooks (such as maintenance of roads, grounds, structures and buildings, painting, etc.) are exempt from the above requirements; however, the organization should be followed to the extent practicable. In all instances, the handbook material shall be compatible with the latest edition of Order 6000.15, General Maintenance Handbook for Airway Facilities.

b. **Content.** Handbooks shall:

(1) Be thorough and presented in a manner that ensures usefulness to the field technicians.

(2) Provide system-oriented information which ties together the various units and/or components that make up a system or equipment and are not available in instruction books.

(3) Not contain equipment modification instructions, but the information therein shall reflect the equipment configuration that results from the accomplishment of all approved modifications.

(4) Not contain indiscriminate duplication of information contained in instruction books.

(5) Not replace instruction books but will generally supplement and augment information contained in these books.

(6) Not contain installation instructions. Installation instructions are contained in separate standard equipment installation handbooks.

207. **BASIC ORGANIZATION OF A MAINTENANCE TECHNICAL HANDBOOK.** A standardized organization will permit the user to quickly find and refer to any information desired and to become familiar with information contained in the handbook. It also simplifies and expedites the preparation of the final handbook. The following basic organization shall be used when preparing maintenance technical handbooks:

a. **Cover**. Use FAA Form 1320-2, Order Cover Format, to prepare the cover. Use of the word HANDBOOK in the title is permitted.

b. **Record of Changes**. FAA Form 1320-5, Record of Changes, is printed on the reverse side of the cover. The record of changes is used to record all the printed changes to the order or handbook.

c. **Foreword**. A foreword signed by the Program Director for Operational Support, shall be prepared for each handbook.

d. **Table of Contents**. A Table of Contents (TOC) shall be prepared for each handbook.

e. **List of Tables**. The List of Tables is part of the TOC listing all tables in the Order.

f. **List of Illustrations**. The List of Illustrations is part of the TOC listing all illustrations/figures in the Order.

NOTE: TOC, List of Tables, and List of Illustrations may be combined in short, non-complex directives.

g. **Chapter 1. General Information and Requirements**. This chapter shall contain existing general guidance regarding the subject of the handbook.

h. **Chapter 2. Technical Characteristics**. This chapter shall contain the purpose or function, description, and theory of the system or equipment.

i. **Chapter 3. Standards and Tolerances**. This chapter shall contain the prescribed standards and tolerances for the applicable system or equipment.

j. **Chapter 4. Periodic Maintenance**. This chapter shall contain a list of essential maintenance activities that are required on a periodic, recurring basis and the schedules for their accomplishment.

k. **Chapter 5. Maintenance Procedures**. This chapter shall contain the procedures that are required for accomplishing the various maintenance activities, both preventive and corrective, and any associated safety precautions.

l. **Chapter 6. Flight Inspection**. This chapter shall contain the ground procedures to be followed in connection with flight inspections.

m. **Chapter 7. Miscellaneous**. This chapter shall contain miscellaneous instructions and information not suitable for inclusion in other chapters.

NOTE: An index and glossary may be appropriate for certain handbooks. The office preparing the handbook is responsible for determining the need for these. If appropriate, include as an appendix.

208.-215. **RESERVED**.

SECTION 3. DETAILED REQUIREMENTS

216. **HANDBOOK FORMAT AND CONTENT**. The requirements and instructions as specified in Order 1320.1 and in the subparagraphs below shall be followed when preparing maintenance technical handbooks. (Refer to Appendix 6, Maintenance Handbook Format.) Number and heading of chapters, sections, and paragraphs shall be in accordance with Order 1320.1 and the following subparagraphs.

a. **Foreword**. The foreword shall be prepared as described below:

(1) **Purpose**. The first mandatory paragraph of the foreword shall be titled and worded as follows:

PURPOSE. This handbook provides guidance and prescribes technical standards, tolerances, and procedures applicable to the maintenance and inspection of (Specify). It also provides information on special methods and techniques which will enable maintenance personnel to achieve optimum performance from the equipment. This information augments information available in instruction books and other handbooks, and complements the latest edition of Order 6000.15.

NOTE: The text of the paragraph titled PURPOSE shall be the same for all handbooks, with the exception that the appropriate system or equipment type shall be inserted in the blank.

(2) **Distribution**. The second mandatory paragraph of the foreword shall be titled and worded (for most AOS maintenance technical handbooks) as follows:

DISTRIBUTION. This directive is distributed to selected offices and services within Washington headquarters, the William J. Hughes Technical Center, the Mike Monroney Aeronautical Center, regional Airway Facilities divisions, and Airway Facilities field offices having the following facilities/equipment: (Specify).

(3) **Cancellation**. This paragraph is used in the foreword only when the handbook totally supersedes and cancels another directive.

(4) **Explanation of Changes**. This paragraph shall be used if a cancellation occurs, thereby creating a need to explain the differences between the old and new version.

(5) **Maintenance and Modification Procedure**. This is a mandatory paragraph when the handbook concerns AOS maintained equipment, systems, or facilities where AOS provides second level engineering support. It shall take the next available number and be titled and worded as follows:

(a) The Order 6000.15, this handbook, the applicable equipment instruction book, and other applicable handbooks shall be consulted and used together by the maintenance technician in all duties and activities for the maintenance of (Specify). These three documents shall be considered collectively as the single official source of maintenance policy and direction authorized by Operational Support. References located in the appropriate paragraphs of this handbook entitled Chapter 3, Standards and Tolerances, Chapter 4, Periodic Maintenance, and Chapter 5, Maintenance Procedures, shall indicate to the user whether this handbook and/or the equipment instruction book shall be consulted for a particular standard, key inspection element or performance parameter, performance check, maintenance task, or maintenance procedure.

(b) The latest edition of Order 6032.1, Modification to Ground Facilities, Systems, and Equipment in the National Airspace System, contains comprehensive direction concerning the development, authorization, implementation, and recording of modifications to facilities, systems, and equipment in commissioned status. It supersedes all instructions published in earlier editions of maintenance technical handbooks and related directives.

(6) **Forms Listing**. This paragraph is used in the foreword only when a form unique to the maintenance or inspection of the particular equipment, system, or facility is required.

(a) Examples of unique, required forms are: FAA Form 6000-8, Technical Performance Record, FAA Form 6790-4, VOR Ground Check Record, and FAA Form 6670-1 Multi-Channel Recorder Check Record.

(b) Examples of general forms are: FAA Form 6030-1, Facility Maintenance Log, FAA Form 6030-16, Technical Reference Data Records Cover/Transmittal Sheet, and FAA Form 6030-17, Technical Reference Data Record.

(c) The forms found in the latest editions of Orders 6000.15, 6032.1, and other supporting directives, are not listed in the foreword, although they may be referred to, when appropriate, in the handbook text.

(7) **Recommendations for Improvement**. This paragraph shall be used when soliciting recommendations for improvement. Tear out comment sheets shall be provided in back of the handbook.

(8) **Signature of Program Director for Operational Support**. Each foreword is signed by the Program Director for Operational Support.

b. **Table of Contents**. The table of contents shall be prepared in accordance with paragraph 608 of Order 1320.1. If the handbook is large and complex, it is permissible (and may even be desirable) to segregate the lists of tables and illustrations from the chapter, section, and paragraph listing in the table of contents.

c. **Chapter 1. General Information and Requirements**.

(1) **Subject Matter**. This chapter shall be made a part of each handbook. It shall contain:

(a) Information pertaining to the equipment, system, or facility as a whole, and to the use of the handbook itself.

(b) While giving general information and guidance on the subject, it should not duplicate information contained in Order 6000.15 or Order 6032.1, or in the other chapters of the handbook.

(c) Where required for completeness, additional information regarding the subject matter of Order 6000.15, but applicable only to the system or equipment covered by the maintenance technical handbook, shall be shown as a topic with its own paragraph heading and may be subdivided into subparagraphs, as required.

(2) **First Paragraph**. The first paragraph of this chapter shall be titled and worded as follows:

OBJECTIVE. This handbook provides the necessary guidance, to be used in conjunction with information available in instruction books and other handbooks, for the proper maintenance of (Specify).

(3) **Certification**. A certification paragraph, if required, shall be titled and worded as follows:

CERTIFICATION. Refer to Order 6000.15 for general guidance on the certification of systems, subsystems, and equipment. Refer to appendix 1 of this handbook for the specific certification requirements of the (Specify) system.

(4) **Aircraft Accident**. A paragraph entitled Aircraft Accident shall be included in this chapter for handbooks pertaining to facilities, systems, or equipment directly involved in the generation, transmission, processing, display of information, or guidance provided to aircraft and/or air traffic personnel. This paragraph shall refer to the latest edition of Order 8020.11, Aircraft Accident and Incident Notification, Investigation, and Reporting, for the general requirements following an aircraft accident/incident. In addition, this paragraph shall include requirements that are unique to the particular facility, system, or equipment. For example, the

handbook on Very-high-frequency Omni-directional Range (VOR) facilities should contain a statement concerning ground checks following an aircraft accident/incident. The general information contained in Order 8020.11 may be supplemented as needed, but the general information should not be repeated in this paragraph.

d. **Chapter 2. Technical Characteristics**. This chapter shall be made a part of each handbook. It shall contain information needed to acquaint the reader with the system or equipment with which the handbook is concerned. The chapter shall include the topics described in the subparagraphs below, but need not be organized to employ the exact subparagraph titles shown.

(1) **Purpose or Function**. The discussion shall contain information relating to the purpose or function of the system or equipment and, when applicable, how the system or equipment is used in conjunction with other systems or equipment. Examples of typical introductory statements are as follows:

(a) Precision approach radar provides aircraft position information to the airport traffic controller for use in advising pilots flying under Instrument Flight Rules (IFR).

(b) The communications system provides communication links between the aircraft pilot and the air traffic controller.

(2) **Description**. The discussion shall include a general physical and technical description of the equipment or system as applicable. Where good judgment indicates that various models or configurations of equipment should be described, such information shall be shown for each type of equipment or configuration.

(3) **Theory**.

(a) The discussion shall include sufficient theory of operations of the system or equipment to provide a comprehensive understanding of functions.

(b) Detailed equipment theory, similar to that normally given in training manuals and instruction books, shall not be included except in special instances where it is essential for understanding the operation and maintenance of the equipment.

(c) References to the instruction book theory shall be provided when applicable.

(d) Functional block diagrams shall be included when the operation can best be explained by their use. Abstract theory is not to be included unless justified by a definite requirement.

e. **Chapter 3. Standards and Tolerances**. This chapter shall be made a part of each handbook. It shall provide a list of the essential system or equipment parameters, the standard value assigned to each parameter, and the initial and operating tolerances/limits imposed on each standard.

(1) **Content**.

(a) The standards, initial tolerances/limits, and operating tolerances/limits specified in maintenance technical handbooks shall be as follows:

1 The STANDARD shall be the optimum value assigned to an essential parameter of the system and shall be compatible with the system as a whole and the design capability of the equipment involved. Often, this will be the FAA Form 6030-17, value established at facility commissioning.

2 The INITIAL TOLERANCE/LIMIT shall be the maximum deviation from the standard value of the parameter, or the range, which is permissible when the system or equipment is accepted for use in the NAS at the time of initial commissioning or after any readjustment, modification, or modernization.

3 The OPERATING TOLERANCE/LIMIT shall be the maximum deviation from the standard value of the parameter or the range within which a system or an equipment may continue to operate on a commissioned basis without adjustment or corrective maintenance and beyond which remedial action by maintenance personnel is mandatory.

(b) The standards and tolerances/limits prescribed in maintenance technical handbooks shall be based on system and monitor requirements, specifications under which the equipment was manufactured, use of standard test equipment, standard procedures, and the results of field experience. System and monitor standards and tolerances/limits shall be applicable to the system taken as a whole.

(c) Where monitor alarm equipment is employed, the equipment operating standards and tolerances/limits and the monitor alarm standards and tolerances/limits will seldom be the same. Equipment operating standards and tolerances/limits should be considered to be quality-control type requirements, beyond which a deviation will not ordinarily endanger a user. Monitor alarm standards and tolerances/limits should be considered to be the limits beyond which safety may be jeopardized. Also, monitor alarm standards and tolerances/limits should indicate whether the monitor alarm tolerances are greater than or less than the operating tolerances for certification.

(2) **Presentation**. Insofar as practical, the standards and tolerances shall be listed in tabular form, cross-referenced as appropriate to the paragraph which describes the procedure for checking each of the required parameters. This cross-reference will be in Chapter 5, Maintenance Procedures, or the equipment instruction book. If the nature of the standards and tolerances is such that they do not lend themselves to tabulation, paragraph presentation may be employed. See Figure 2-1, Performance Parameters/Inspection Elements (2 Sheets).

(3) **Paragraphing.**

(a) The first paragraph of this chapter shall be titled and worded as follows:

GENERAL. This chapter prescribes the standards and tolerances for (Specify), as defined and described in the latest edition of Order 6000.15. All key performance parameters and/or key inspection elements are clearly identified by an arrow (→) placed to the left of the applicable item.

(b) The rest of the paragraphs in this chapter may be titled by facility type; e.g., Air Route Traffic Control Center (ARTCC), Remote Center Air to Ground (RCAG), etc., by site location; e.g., transmitter /receiver site, indicator site, repeater site, etc., by equipment model; e.g., ASR-7, ASR-8, etc., by functional equipment grouping; e.g., transmitter, receiver, monitor, indicator, etc., or by whatever scheme is most convenient. Numbered paragraphs and lettered/numbered subparagraphs shall be employed even where the standards and tolerances are presented in tabular form.

(4) **Emphasis.** Certain parameters are considered critical indicators of whether the system or equipment is performing its intended function and is being maintained properly. These key performance parameters or key inspection elements shall be clearly singled out and identified by placing an arrow (→) to the left of the item as listed in the tabulation of parameters.

f. **Chapter 4. Periodic Maintenance.** This chapter shall be made a part of each handbook. It shall enumerate all of the maintenance activities required on a periodic basis whether on a fixed, scheduled basis or on an irregular but nevertheless recurring basis. This enumeration is done in order to ensure top efficiency in system and equipment performance, to minimize unwanted interruption in service, and to eliminate major breakdowns. It shall stipulate the schedules for the accomplishment of these activities. The schedules shall reflect the maximum permissible intervals between successive accomplishments to ensure that the performance of the system or equipment is reliable and within designated technical tolerances or limits.

(1) **Presentation.** Except for the first paragraph of the chapter as described below, the chapter shall be divided into two sections (see Order 1320.1 for the approved method). The first section shall be titled PERFORMANCE CHECKS and the second section shall be titled OTHER MAINTENANCE TASKS. Both sections shall be presented in tabular form as shown in Figure 2-2, Specimen Periodic Maintenance Performance Checks Tabulation (4 Sheets), and Figure 2-3, Combined Tasks for Environmental Handbooks (2 Sheets).

(2) **Content.**

(a) Pursuant to Order 6000.15, this chapter shall fully delineate ALL required periodic maintenance activities. To accomplish this, each section shall employ one or more of the three techniques described below; whichever is appropriate for the individual handbook, section and/or subject. Each section shall clearly state which of the techniques is employed. The same technique need not be used in both sections. Current AOS procedure is to include instruction book periodic maintenance schedules in maintenance handbooks.

1 ALL of the required periodic maintenance activities will be listed. These activities shall be accomplished instead of those contained in the equipment instruction books. The frequency of accomplishment of each activity will be stipulated in precise terms; e.g., weekly, quarterly, etc. or, in general terms; e.g., as required, every 3 to 4 months, etc.

2 Other periodic maintenance activities may be prescribed to supplement those activities cited in the equipment instruction books.

3 SPECIFIC periodic maintenance activities contained in the equipment instruction books will be incorporated by specific paragraph reference, and the frequency of accomplishment of these activities will be prescribed.

(b) The section titled PERFORMANCE CHECKS shall:

1 List all tests, measurements, and observations of normal operating controls and functions necessary to determine whether a system or equipment is operating within its established tolerances or limits. Each listed activity shall first describe an action; e.g., inspect, observe, measure, etc. and then, if not obvious, explain what the action is designed to do; i.e., what irregularity is being sought.

2 Include cross-references as appropriate to the paragraphs in Chapter 3, Standards and Tolerances, Chapter 5, Maintenance Procedures, and/or the equipment instruction book, as shown in figure 2-2.

3 List examples of PERFORMANCE CHECKS that include: VOR ground checks, localizer clearance and course location measurements, programmed equipment checkout of NAS En Route Stage subsystems such as the teletypewriter subsystem, transmitter power output and modulation measurements, radar system minimum discernible signal measurements, meter reading observations and recordings, differential settlement and horizontal/vertical alignment checks in structures, etc.

(c) The section titled OTHER MAINTENANCE TASKS shall:

1 List all tasks other than those listed in section 1 which are necessary to prevent deterioration and/or to ensure reliable operation of a system or equipment. Each listed activity shall first describe an action; e.g., lubricate, change, adjust, etc. and then, if not obvious, shall explain what the action is designed to do.

2 Include cross-references as appropriate to the paragraphs in Chapter 3, Standards and Tolerances, Chapter 5, Maintenance Procedures, and/or the equipment instruction book.

3 List examples of OTHER MAINTENANCE TASKS that include lubrications, engine generator oil changes, scheduled equipment overhaul, belt tension adjustments, etc.

SAMPLE

TRANSMITTER SITE EQUIPMENT (Continued)				
Parameter	*Reference Paragraph*	*Standard*	*Tolerance/Limit*	
			Initial	*Operating*
→ (5) Video output.....	93c	2 V	1.9 V to 2.3 V	1.9 V to 2.3 V
→ (6) Tangential..... sensitivity.	93d	Commissioning value	-87 dBm	-85 dBm
→ (7) Overall system..... sensitivity.	93e	Commissioning value	Same as standard	Within 3 dB of standard value (-83 dBM minimum)
(8) Local oscillator.... frequency.	93i	1030.5MHz	1030.3 MHz to 1030.7 MHz	1030.3 MHz to 1030.7 MHz
c. ATCBI-3 Pulse ..... MODE Generator.	ATCBI-3B ib, sect 4, par 3.4.1			
→ (1) Output prf.....	R ATCBI-3D ib, sect 2, par 7.2	Commissioning value	Same as standard	Same as standard
(2) Countdown ratio.				
(a) ARSR.....		1:1	Same as standard	Same as standard
(b) ASR		Commissioning value	Same as standard	Same as standard
(3) Trigger delay ..... (systems with radar reinforced processing)		Commissioning value	±0.5 μs	±1.0 μs

FIGURE 2-1. PERFORMANCE PARAMETERS/INSPECTION ELEMENTS (SHEET 1)

SAMPLE

TRANSMITTER SITE EQUIPMENT (Continued)				
Parameter	***Reference Paragraph***	***Standard***	***Tolerance/Limit***	
			Initial	***Operating***
(4) Trigger delay ..... (systems without radar reinforced processing).		Commissioning value	±0.5μs	±1.0μs
d. ATCBI-3 System Monitor.				
(1) Power monitor..... alarm.	ATCBI-3 ib, sect 6, par 4.3i, ATCBI-3B ib, sect 4, par 3.7	±1 db power change	Same as standard	Same as standard
(2) Range alarm	ATCBI-3 ib, sect 6, par 4.30	±1 μs timing change	Same as standard	Same as standard

FIGURE 2-1. PERFORMANCE PARAMETERS/INSPECTION ELEMENTS (SHEET 2 – END)

SAMPLE

Performance Checks	*Reference Paragraph*	
	Standards & Tolerances	*Maintenance Procedures*
115. **DAILY.**		
Perform the following checks and record the required data on FAA Form 6000-8.		
a. Transmitter power	45	165
b. Receiver sensitivity (minimum discernible signal-mds)	46 and 47	166, 167, TI 6310.22, par 6.5.1.9, 6.5.1.12, and 6. 5.1.1 2A
c. Output of line drivers	61	178
116. **WEEKLY.**		
Perform the following checks and record the required data on FAA Form 6000-8.		
a. Transmit-Receive (tr) tube recovery time.	48	171
b. Ring time	49	172
c. Echo box cancellation ratio	51	170
d. Transmitter spectrum	62	173
e. Video subclutter visibility	54	176
f. Transmitter frequency	N/A	180
g. Standing-wave ratio	57	169
h. System sensitivity	64	179
i. Cancellation ratio per canceller	53	174
j. Receiver noise figure	52	168

FIGURE 2-2. SPECIMEN PERIODIC MAINTENANCE PERFORMANCE CHECKS TABULATION (SHEET 1)

SAMPLE

Subsection 2. ASR 5/5D/5E/6/6D/6E

Performance Checks	*Reference Paragraph*	
	Standards & Tolerances	*Maintenance Procedures*
125. **DAILY.**		
Perform the following checks and record the required data on FAA Form 6000-8.		
a. Transmitter power	75	190
b. Receiver sensitivity (mds)	76 and 77	191 and 192
c. Output of line drivers	91	203
126. **WEEKLY.**		
Perform the following checks and record the required data on FAA Form 6000-8.		
a. Tr tube recovery time	78	196
b. Ring time	79	197
c. Echo box cancellation ratio	81	195
d. Transmitter spectrum	92	198
e. Video subclutter visibility	84	201
f. Standing-wave ratio	87	194
g. Transmitter frequency	N/A	205
h. System sensitivity	94	204
i. Receiver noise figure	82	193
j. Cancellation ratio per canceller	83	199

FIGURE 2-2. SPECIMEN PERIODIC MAINTENANCE PERFORMANCE CHECKS TABULATION (SHEET 2)

SAMPLE

Subsection 1. ASR-7/7E/7F

Performance Checks	*Reference Paragraph*	
	Standards & Tolerances	*Maintenance Procedures*
145. **TRANSMITTER SITE.**		
a. Weekly. Perform the following checks and enter the required data on FAA Form 6000-8.		
(1) Transmitter power.....	55	175, Table 6-3
(2) Receiver sensitivity (mds).....	56	176
(3) Output of line drivers	68	Table 6-8
(4) Ring time.....	58	179
(5) VSWR	65	183
(6) System sensitivity.....	71	186
b. Biweekly. Check transmitter ..... spectrum and enter the required data on FAA Form 6000.8.	69	180
c. Monthly. Perform the following checks and record the required data on FAA Form 6000-8.		
(1) Tr limiter recovery time.....	57	178
(2) Receiver noise figure.....	61	22d (6) (b)
(3) Transmitter frequency.....	N/A	Table 6-12
d. QUARTERLY. Check video cancellation ratio and enter the required data on FAA Form 6000-8.	62	Table 6-7

FIGURE 2-2. SPECIMEN PERIODIC MAINTENANCE PERFORMANCE CHECKS TABULATION (SHEET 3)

SAMPLE

Subsection 1. ASR-7/7E/7F (Continued)

Performance Checks	*Reference Paragraph*	
	Standards & Tolerances	*Maintenance Procedures*
146. **INDICATOR SITE.**		
a. Monthly. Perform the following checks and enter the required data on FAA Form 6000-8.		
(1) Check mti reflector operation.	81	184
(2) Check ARP amplitude.		
(a) ASR-7	80a(2)	185e(1)
(b) ASR-7E and ASR-7F	80a(2)	
(3) Check ACP amplitude.		
(a) ASR-7	80b(3)	185e(1)
(b) ASR-7E and ASR-7F	80b(3)	
b. Quarterly. Perform the following checks and record the required data on FAA Form 6000-8.		
(1) Check ARP pulse width.		
(a) ASR-7	80a(3)	185e(1)
(b) ASE-7E and ASR-7F	80a(3)	
(2) Check ACP pulse width.		
(a) ASR-7	80b(4)	185e(1)
(b) ASR-7E and ASR-7F	80b(4)	

FIGURE 2-2. SPECIMEN PERIODIC MAINTENANCE PERFORMANCE CHECKS TABULATION (SHEET 4 – END)

SAMPLE

Maintenance Activities	*Reference Paragraph*	
	Standards & Tolerances	*Maintenance Procedures*
412. **MONTHLY.**		
a. Air Distribution System ..... Visually check all air intake and exhaust openings, screens, louvers, etc., for obstructions; remove as required.	N/A	N/A
b. Heating Water and Steam Systems..... Visually check condition of burner linkages and drive belts on belt driven boiler auxiliary equipment; replace or tighten as required.	Instruction book	Instruction book
c. Condenser Water System.		
(1) Check cooling tower fan ..... gear reducer oil level.	304a(1)	Instruction book
(2) Check condenser pump ..... motor oil level in sight glass, if applicable. Lubricate pump packing box.	304a(31)	
(3) Visually inspect fan..... and drive coupling, fan clamps, and fasteners for security.	N/A	534
(4) Check cooling tower sump..... for sediment; clean if required.	N/A	534

NOTE: The Tabulation of Performance Checks and Maintenance Tasks may be combined in environmental handbooks. The combined listing of activities should be headed Maintenance Activities.

FIGURE 2-3. COMBINED TASKS FOR ENVIRONMENTAL HANDBOOKS (SHEET 1)

SAMPLE

Maintenance Activities	*Reference Paragraph*	
	Standards & Tolerances	***Maintenance Procedures***
413. **QUARTERLY.**		
a. Air Distribution System.		
(1) Check blower bearings and..... lubricate if required.	N/A	Instruction book
(2) Visually check condition of all .... other air filters on exhaust fans, intake dampers, etc., not monitored by the CCMS; replace as required.	N/A	509
(3) Visually check all air-handling..... system dampers for proper position; adjust as required.	Instruction book	Instruction book
b. Heating Water and Steam Systems.		
(1) Check boiler ignition ..... assemblies and electrodes for condition and proper positioning of burner and safety pilot flames; clean and adjust as required.	Instruction book	Instruction book
(2) Check oil atomizing nozzles; ..... clean if required.	N/A	Instruction book
(3) Clean flame detector lens..... and check scanner cell.	N/A	Instruction book
(4) Check primary and secondary..... air dampers; remove accumulated lint or dirt.	N/A	N/A

NOTE: The Tabulation of Performance Checks and Maintenance Tasks may be combined in environmental handbooks. The combined listing of activities should be headed Maintenance Activities.

FIGURE 2-3.COMBINED TASKS FOR ENVIRONMENTAL HANDBOOKS
(SHEET 2 – END)

(3) **Paragraphing.**

(a) The first paragraph of this chapter shall be titled and worded as follows:

GENERAL. This chapter establishes all the maintenance activities that are required for (Specify) on a periodic, recurring basis and the schedules for their accomplishment. The chapter is divided into two sections. The first identifies the performance checks (i.e., tests, measurements, and observations) of normal operating controls and functions, which are necessary to determine whether operation is within established tolerances/limits. The second section identifies other tasks that are necessary to prevent deterioration and/or ensure reliable operation.

(b) The sections titled PERFORMANCE CHECKS and OTHER MAINTENANCE TASKS shall each be a tabulation or a series of tabulations listing the required periodic maintenance activities cross-referenced as indicated in figure 2-2. Numbered paragraphs shall be employed even though the maintenance schedules are presented in tabular form. The information shall be paragraphed in a way that will be most useful to the field technician at the site. Some examples of the various possibilities are presented in the following subparagraphs.

> **NOTE:** Although the illustrations use some of the current handbook subjects, the sample tabulations do not necessarily show the actual breakdown used in the handbooks or even what might be considered desirable. These are simply possibilities.

1 If the handbook covers several facility types; e.g., Air/Ground (A/G), ARTCC, RCAG, etc., the maintenance schedules may be identified first by individual facility type and then by functional equipment grouping shown in Figure 2-4, Chapter 4. Tabulation for Several Facility Types.

Performance Check or Maintenance Task	*Reference Paragraph*	
	Standards & Tolerances	*Maintenance Procedures*
____. **ARTCC.** a. **Transmitters.** (1) **Daily.** (a) Etc. (2) **Weekly.** (a) Etc. (3) **Etc.** b. **Receivers.** (1) **Etc.** c. **Etc.** ____. **RCAG.** Etc.		

FIGURE 2-4. CHAPTER 4. TABULATION FOR SEVERAL FACILITY TYPES

2 If the handbook covers one facility type; e.g., Airport Surveillance Radar (ASR) handbook, the maintenance schedules may be identified first by equipment model and then by site location and functional equipment grouping as shown in Figure 2-5, Chapter 4. Tabulation for a Single Facility Type (Model, Location, and Function Grouping).

Performance Check or Maintenance Task	*Reference Paragraph*	
	Standards & Tolerances	*Maintenance Procedures*
____. **ASR-7.**		
a. **Transmitters/Receiver Site.**		
(1) **Transmitters.**		
(a) **Daily.**		
1 Etc.		
(b) **Weekly.**		
1 Etc.		
(2) **Receivers.**		
(3) **Etc.**		
b. **Indicator Site.**		
c. **Etc.**		
____. **ASR-7.**		
Etc.		

FIGURE 2-5. CHAPTER 4. TABULATION FOR A SINGLE FACILITY TYPE (MODEL, LOCATION, AND FUNCTION GROUPING)

3 If the handbook covers one facility type; e.g., Engine Generator (E/G) handbook, the maintenance schedules may be identified first by equipment type and then by size as show in Figure 2-6, Chapter 4. Tabulation for a Single Facility Type (Model and Size Grouping).

Performance Check or Maintenance Task	*Reference Paragraph*	
	Standards & Tolerances	*Maintenance Procedures*
____. **DIESEL EG.**		
a. **Below 125 KVA.**		
(1) **Monthly.**		
(a) Etc.		
(2) **Quarterly.**		
(a) Etc.		
(3) **Etc.**		
b. **125 KVA and Above.**		
(1) Etc.		
____. **GASOLINE EG.**		
Etc.		

FIGURE 2-6. CHAPTER 4. TABULATION FOR A SINGLE FACILITY TYPE (MODEL AND SIZE GROUPING)

4 If the handbook covers one facility type; e.g., the Instrument Landing System (ILS) handbook, the maintenance schedules may be identified first by functional equipment grouping and then by equipment type as shown in Figure 2-7, Chapter 4. Tabulation for a Single Facility Type (Function and Model Grouping).

Performance Check or Maintenance Task	*Reference Paragraph*	
	Standards & Tolerances	*Maintenance Procedures*
____. **LOCALIZER.** a. **Mark 1a.** (1) **Biweekly.** (a) Etc. (2) **Quarterly.** (a) Etc. (3) **Etc.** b. **Mark 1f.** (1) Etc.		

FIGURE 2-7. CHAPTER 4. TABULATION FOR A SINGLE FACILITY TYPE (FUNCTION AND MODEL GROUPING)

5 If the handbook covers one functional equipment grouping; e.g., Very High Frequency (VHF)/Ultra High Frequency (UHF) Air Ground Transmitters, the maintenance schedules may be identified just by equipment type as shown in Figure 2-8, Chapter 4. Tabulation for Functional Equipment Group (Type or Model).

Performance Check or Maintenance Task	*Reference Paragraph*	
	Standards & Tolerances	*Maintenance Procedures*
____. **AN/GRT-xx.**		
a. **Monthly.**		
(1) Etc.		
b. **Quarterly.**		
(1) Etc.		
c. **Etc.**		

FIGURE 2-8. CHAPTER 4. TABULATION FOR FUNCTIONAL EQUIPMENT GROUP (TYPE OR MODEL)

6 If the handbook covers a subject in which the maintenance schedules need to be identified only by periodicity of time, the tabulation may appear as shown in Figure 2-9, Chapter 4. Tabulation with Tasks Identified by Period Only.

Performance Check or Maintenance Task	*Reference Paragraph*	
	Standards & Tolerances	*Maintenance Procedures*
____. **DAILY.** a. Etc. b. Etc. ____. **WEEKLY.** a. Etc. b. Etc.		

FIGURE 2-9. CHAPTER 4. TABULATION WITH TASKS IDENTIFIED BY PERIOD ONLY

7 If the handbook covers several related systems for which it is likely that the same person or crew will be performing all of the periodic maintenance at any given location, and possibly even at several locations, all of the activities may be grouped first by periodicity of time and then by system as shown in Figure 2-10, Chapter 4. Tabulation with Tasks Identified by Period and System.

Performance Check or Maintenance Task	*Reference Paragraph*	
	Standards & Tolerances	*Maintenance Procedures*
____. **QUARTERLY.**		
a. **Foundation Systems.**		
(1) Etc.		
b. **Floor Systems.**		
(1) Etc.		
____. **SEMIANNUALLY.**		
a. **Foundation Systems.**		

FIGURE 2-10. CHAPTER 4. TABULATION WITH TASKS IDENTIFIED BY PERIOD AND SYSTEM

8 If the applicable FAA Form 6000 series form contains most or all of the performance checks (or maintenance tasks) that are to be accomplished on a unit schedule, the following tabular arrangement shown in Figure 2-11, FAA Form 6000 Series Correlation with Performance Checks or Maintenance Tasks on a Unit Schedule should be used:

Performance Check or Maintenance Task	*Reference Paragraph*	
	Standards & Tolerances	*Maintenance Procedures*
____. **DAILY (or MONTHLY, etc).** a. **Complete FAA Form 6000 series.** b. **Etc.** (For additional items required daily (or monthly etc.) but not printed on the FAA Form 6000 series.)		

FIGURE 2-11. FAA FORM 6000 SERIES CORRELATION WITH PERFORMANCE CHECKS OR MAINTENANCE TASKS ON A UNIT SCHEDULE

9 If the applicable FAA Form 6000 series contains checks or tasks to be performed at various intervals, these should be correlated in the tabular schedules as shown in Figure 2-12, FAA Form 6000 Series Correlation with Performance Checks or Maintenance Tasks at Various Intervals.

Performance Check or Maintenance Task	*Reference Paragraph*	
	Standards & Tolerances	*Maintenance Procedures*
____. **DAILY.** a. **Inspect standby equipment.** (FAA Form 6000 series Item) b. **Etc.** ____. **WEEKLY.** a. **Check AC ripple in DC power supplies.** b. **Linearity Check.** (FAA Form 6000 series Item) c. **Etc.**		

FIGURE 2-12. FAA FORM 6000 SERIES CORRELATION WITH PERFORMANCE CHECKS OR MAINTENANCE TASKS AT VARIOUS INTERVALS

g. **Chapter 5. Maintenance Procedures**. This chapter shall be made a part of each handbook. It shall include the procedures that are required for accomplishing the various essential maintenance activities, both periodic and incidental, and any associated safety precautions.

(1) **Presentations**. Except for the first paragraph of the chapter, the chapter shall be divided into 3 sections.

(a) The first section shall be titled PERFORMANCE CHECK PROCEDURES.

(b) The second section shall be titled OTHER MAINTENANCE TASKS PROCEDURES.

(c) The third section shall be titled SPECIAL MAINTENANCE PROCEDURES.

(2) **Content**. The various sections shall contain testing, measurement, adjustment, alignment, calibration, repair, troubleshooting, and for automation systems or information technology performance and status monitoring, system reconfiguration, equipment maintenance procedures, and any associated safety precautions. It shall include information and instructions already detailed in equipment instruction books ONLY when they relate to overall system procedures. The instruction book shall be used as a guide for EQUIPMENT troubleshooting and adjustment of internal circuits and/or components. Where SYSTEM adjustments, standards, or tolerances are involved, handbook procedures shall be provided in detail. Where additional procedures of proven value have been developed through maintenance experience, they shall be included. Procedures pertaining only to certain models and configurations of equipment shall be identified and associated with the appropriate unit.

(a) The section titled PERFORMANCE CHECK PROCEDURES shall contain the procedures or methods for making the performance checks listed in chapter 4, section 1 of the maintenance technical handbook. The section shall also include instructions on the preparation and completion of required FAA Form 6000 series, when necessary.

(b) The section titled OTHER MAINTENANCE TASKS PROCEDURES shall contain the procedures or methods for doing the tasks listed in chapter 4, section 2, of the maintenance technical handbook.

(c) The section titled SPECIAL MAINTENANCE PROCEDURES shall contain the procedures or methods for doing special tasks, usually nonscheduled and not listed in chapter 4 of the maintenance technical handbook. This includes special adjustment, alignment, or calibration procedures.

(d) Each procedure described in the sections titled PERFORMANCE CHECK PROCEDURES and OTHER MAINTENANCE TASKS PROCEDURES shall be cross-referenced to the check or task stipulated in chapter 4 of the maintenance technical handbook.

(e) The standards and tolerances shall not be repeated as part of the procedures described in chapter 5 of the maintenance technical handbooks. Appropriate cross-references to chapter 3 shall be made instead.

(3) **Paragraphing**.

(a) The first paragraph of this chapter shall be titled and worded as follows:

GENERAL. This chapter establishes the procedures for accomplishing the various essential maintenance activities which are required for (Specify) on either a periodic or incidental basis. The chapter is divided into 3 sections. The first section describes the procedures to be used in making the performance checks listed in chapter 4, section 1. The second section describes the procedures for doing the tasks listed in chapter 4, section 2. The third section describes the procedures for doing special tasks, usually nonscheduled and not listed in chapter 4.

(b) Each different procedure described in this chapter shall be a separately numbered paragraph. The following paragraphing scheme is suggested for fully explaining each procedure:

a. **Object**.

b. **Discussion**.

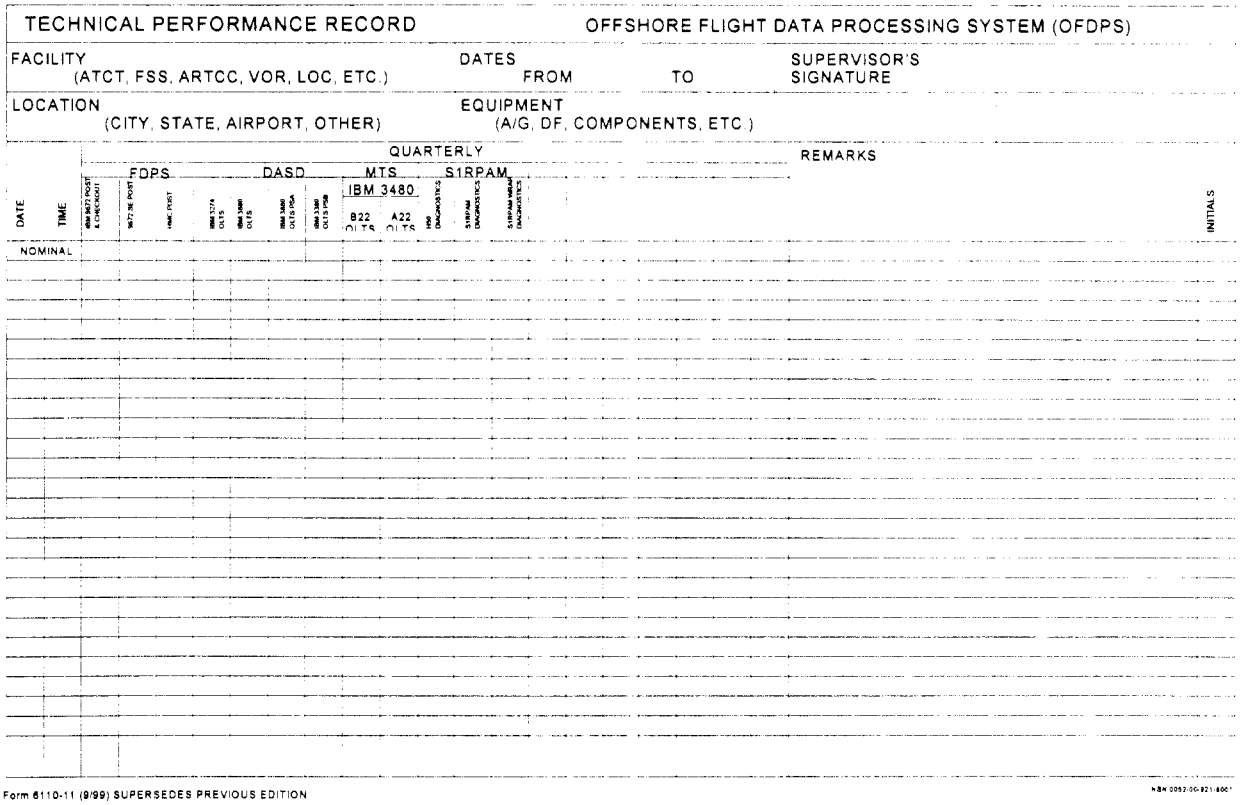
c. **Test Equipment Required**.

d. **Conditions**.

e. **Detailed Procedure**.

(4) **FAA Form 6000 Series**. Instructions for using FAA Form 6000 series (as applicable to specific equipment/systems) shall be included in the appropriate maintenance technical handbooks. These instructions shall conform to the general guidance and symbology for making entries included in Order 6000.15. A standard paragraph, as follows, shall be placed in Section 1, Performance Check Procedures, of chapter 5.

FAA Form 6000 Series Entries. Order 6000.15 contains guidance and detailed instructions for field utilization of FAA Form 6000 series, as applicable to the (equipment/system/facility). Entries shall be made in accordance with the instructions published in Order 6000.15, (except as otherwise instructed in the subparagraphs to follow). Figure 2-13, Example of FAA Form 6750-3 for Single Frequency Localizer, is a sample FAA Form 6000 series which shows typical entries for normal and unsatisfactory conditions that may be encountered.



TECHNICAL PERFORMANCE RECORD — OFFSHORE FLIGHT DATA PROCESSING SYSTEM (OFDPS)

FACILITY (ATCT, FSS, ARTCC, VOR, LOC, ETC.) — DATES FROM TO — SUPERVISOR'S SIGNATURE

LOCATION (CITY, STATE, AIRPORT, OTHER) — EQUIPMENT (A/G, DF, COMPONENTS, ETC.)

DATE	TIME	QUARTERLY: FDPS	QUARTERLY: DASD	QUARTERLY: MTS IBM 3480	QUARTERLY: S1RPAM	REMARKS	INITIALS
NOMINAL							

Form 6110-11 (9/99) SUPERSEDES PREVIOUS EDITION

NSN 0052-00-921-8001

FIGURE 2-13. EXAMPLE OF FAA FORM 6110-11, TECHNICAL PERFORMANCE RECORD

h. **Chapter 6. Flight Inspection**. This chapter shall be made a part of each handbook when flight inspections requiring action by maintenance personnel, are conducted on the pertinent equipment or system and the information in Order 6000.15 is inadequate. This chapter shall contain information on detailed ground procedures to be accomplished by maintenance personnel prior to, during, and after flight inspection. Appropriate references in the latest edition of Handbook OA P 8200.1, United States Standard Flight Inspection Manual, may be included. The contents of this chapter, however, shall not duplicate the contents of Order 6000.15. Where required for completeness, additional information applicable only to the system or equipment covered by the maintenance technical handbook shall be included.

i. **Chapter 7. Miscellaneous**. This chapter may be made a part of the handbook. It shall contain topics that do not fit into any of the other chapters. If there are no miscellaneous items to be inserted, the chapter is not required.

217. **PREPARATION OF MANUSCRIPT**. Maintenance technical handbooks shall be prepared in accordance with the philosophy, language, terminology, and format as specified herein. The handbook shall be directed to, and written for the individual employee concerned with the maintenance of equipment or system. The material presented must convey information from the mind of the writer to that of the reader, and the handbook will be satisfactory only if it effectively accomplishes this purpose. The writer should:

a. **Descriptive Titles.** Use proper descriptive titles with type or model numbers in referring to equipment rather than just type or model numbers.

b. **Illustrative Material.** Use illustrative material as an integral part of the handbook to help present complicated or complex instructions. A better and clearer understanding of a subject can be obtained with the generous use of photographs, sketches, graphs, and drawings. Provide illustrations of system equipment, parts of equipment, or circuits to more fully explain equipment details or system functioning.

c. **Equipment Adjustments.** Include statements concerning equipment adjustments that make it clear that the performance of such adjustments is to obtain the greatest possible accuracy, availability, and operational safety factor. Such overall accuracy may not necessarily be obtained by making all adjustments to the exact center of a tolerance placed on a standard.

d. **Component Replacements.** Include statements concerning adjustments to compensate for component replacements that take into account that some components change their characteristics rapidly during the first few hours of use. The principle to be applied is the same as that discussed above.

e. **Conditions.** Specify that conditions during maintenance procedural adjustments shall duplicate as closely as practicable those experienced during normal unattended operation. For example: building thermostats shall not be readjusted; as much as possible, shields shall be kept in place and outside doors shall be closed.

f. **Respect Copyright-Protected Material**. Include credit lines where appropriate.

g. **Illustrations**. Illustrations shall be photographs, drawings, or other clear, readable sketches that can be converted to engineering drawings. Waveform illustrations may be either drawings or photographs. Illustrations shall be located near pertinent text. Illustrations shall be assigned sequential figure numbers.

(1) **Photographs**. Photographs shall be sharp, clear, and free from shadows or highlights that obscure fine detail. Photographs should be furnished in 8" x 11" sizes, however, smaller size photographs (2 1/4" x 2 1/4" or larger) will be acceptable if the pictures are clear and have good contrast. Negatives of photographs shall be furnished if available. If a photo was taken with a digital camera, an electronic file may be submitted in lieu of hardcopy.

(2) **Drawings**. Standard Washington Headquarters drawings may be included as illustrations by reference. Regional drawings shall be submitted as copy. Sketches shall be titled and assigned figure numbers.

h. **Tabulations**. Tabulations shall be arranged so that horizontal lines of data are easily followed without danger of inadvertently deviating to the line above or below. Acceptable methods include dot leaders, ruling horizontal lines between each line of data, double spacing lines of data, or single spacing horizontal lines of data in groups of not over five, with double spaces or ruled horizontal lines between groups. Avoid excessive white space between columns. Tables shall be assigned sequential table numbers.

i. **Abbreviations and Symbols**. When preparing maintenance technical handbooks, use the following standards for abbreviations and symbols:

(1) **American National Standards Institute (ANSI) Publications**.

(a) **ASME Y1.1**, Abbreviations for Use on Drawings and in Text.

(b) **ANSI/IEEE Std 268**, Metric Practice.

(c) **ANSI Y32.2**, Graphic Symbols for Electrical and Electronic Diagrams.

(d) **ANSI Y32.16**, Reference Designations for Electrical and Electronic Parts and Equipment.

(e) **ANSI/IEEE 260**, Standard Letter Symbols for Units of Measurement.

(2) **Institute of Electrical and Electronic Engineers**, IEEE 255, Letter Symbols for Semiconductor Devices.

(3) **Military Standard**, MIL-STD-27A, Designations for Electric Power Switchgear Devices and Industrial Control Devices.

(4) **GPO Style Manual**, to supplement (but not supersede) the above standards.

NOTE: Facility contractions are always capitalized. Use latest edition of Order 1375.4, Standard Data Elements and Codes Facility Identification and Supplemental Standards, for the correct form of facility abbreviations in lieu of the above standards.

218. **MANUSCRIPT CLEARANCE AND FINAL APPROVAL.** Formal manuscript clearance and approval will be accomplished by Operational Support in accordance with the procedures provided in Order 1320.1.

219.-299. **RESERVED.**

CHAPTER 3. PREPARATION OF SYSTEM SUPPORT DIRECTIVES (SSD)

SECTION 1. GENERAL

300. BACKGROUND.

a. In 1997 the AOS Gemini Team formed the Documentation Process Improvement Team (DPIT) to consolidate the various formats used to deliver bulletins and software/hardware modifications to field facilities. The DPIT initiative developed the SSD documentation, which takes advantage of advanced word processor style, editing, and change control options that are readily available to AOS. An integral part of the SSD documentation is the Microsoft Word templates that have been developed to reduce editing timelines, and maintain formatting style.

b. The SSD documentation will be classed as directives as their predecessors were. The new SSD documentation numbering format will maintain the data content and purposes of its predecessor documents.

c. The SSD consists of three document types, and each has the same directive authority as its predecessor. They are as follows:

(1) **System Support Modification (SSM).** The SSM is used to transmit system hardware (H/W), software (S/W), both H/W and S/W, or plant modifications to field facilities. The SSM replaces the former EEM, PEM, and SPB for existing systems and will be used for all new systems.

(2) **System Technical Release (STR).** The STR is used to deliver technical system information that does not require a H/W or S/W modification. The STR replaces the former STB for existing systems and will be used for new systems.

(3) **System Documentation Release (SDR).** The SDR is used to deliver TI documents or change pages. The SDR replaces the former seven-paragraph EEM for existing systems and will be used for new systems.

d. During the SSD transition period, open or pending EEMs, SPBs, STBs, and PEMs will be completed using the original format. There will not be any new modifications issued for the old EEM Handbooks. All new modifications will be issued in the SSD format with the exception of systems with tri-agency agreements. The EEM Modification Handbook table of contents shall cross reference to the SSD Modification Handbook. Field facilities shall retain the systems EEM Modification Handbook until that time when the system is removed or decommissioned.

301. **RESPONSIBILITIES FOR SSDs**. AOS is the office of primary responsibility for these directives. All SSDs issued over the signature of the Program Director for Operational Support. Instructions encompassing responsibilities of other offices shall be coordinated appropriately before issuance.

302. **DIRECTIVE CONTROL**. SSD numbers are issued sequentially based on document type and system. The use of the SSD number is mandatory. The SSD number is to be used for tracking the directive and status accounting. To ensure the numbering continuity of the SSD documents the SSD number control is maintained by AOS-530, Configuration Management, and AOS-200, Configuration Management groups, for the systems under their control.

303. **TABLE OF CONTENTS**. Issued SSDs within the SSD Handbooks are controlled by a TOC. (The SSD TOC shall be updated and delivered with each SSD issued.) The TOC shall be the first attachment to each SSD. The following shall also apply:

a. The first issuance of the TOC shall give direction as to where to place the TOC in the SSD Handbook binder. See Appendix 7, SSD Handbook Binder Information, Figure 5, Sample SSD TOC Attachment (Cover Page for First Release of TOC).

b. Every release of the TOC after the first issuance shall give direction to remove the existing TOC from the SSD Handbook Binder and replace with the new attached TOC. See appendix 7, Figure 6, Sample SSD TOC Attachment (Cover Page for an Existing TOC).

c. The TOC shall be broken down into three sections, one for each of the SSD document types. Within each section, the released documents shall be ordered sequentially by their document number. See appendix 7, Figure 7, Sample SSD TOC Attachment.

d. Since it is a possibility that SSD documents will be released out-of-sequence (i.e., not by document sequence number), the TOC shall identify the unreleased documents by placing **TBD** in the **Date Issued** column, and provide the **Document Number** and its **Title**. See appendix 7, figure 7.

304. **DISTRIBUTION**. The SSDs and attachments are distributed to the field by one of two processes. SSDs and attachments are distributed with a minimum of one hard copy and an electronic copy where applicable. They will be distributed to the field by one of two processes, which are:

a. Information for the address labels is supplied by the Technical Lead and maintained and generated by AOS-530, Information Management Group (IMG) and AOS-200 for respective systems under their control. Updates/changes to the address are supplied by the technical leads or the field and are submitted to AOS-530 or AOS-200 depending on the system.

b. Labels are generated based on FSEP. Information based on facility equipment. Updates/Changes are submitted in accordance with Order 1720.30.

305. **MANDATORY PARAGRAPHS.**

a. To minimize the time, recipients will need to find specific items of information. Paragraphs within SSDs shall follow the same sequence and, in some cases, standardized wording. The SSD document mandatory paragraphs are described in section 3 of this chapter.

b. At times, additional paragraphs may be needed to provide additional information that would not be suited under the mandatory paragraphs. If additional paragraphs are required they shall be inserted after the last mandatory paragraph and shall follow the SSD formatting style.

306. **INSTRUCTION BOOK CHANGES.** Changes to manufacturer's instruction books or TIs are usually associated with a modification to the corresponding system. In such cases the directions for changing the instruction book are part of a standardized page control chart included as an attachment to the SSM. However, if no modification is involved, the directions for changing an instruction book are delivered by an SDR. Refer to paragraph 311 for details on writing SSMs, STRs, and SDRs.

NOTE: Replacement pages are used for correcting instruction books. Pen-and-ink changes SHALL NOT be specified or implied in the SSM or SDR. (Unless using the event schedule in an SSM, Event II can release preliminary pen-and-ink changes.)

307.-310. **RESERVED.**

SECTION 2. WRITING SYSTEM SUPPORT DIRECTIVES

311. **SSM/STR/SDR DIRECTIVES.** The SSDs shall be disseminated for the purpose of issuing system modifications, technical data, event notifications, documentation releases, and safety modifications for a particular subject classification of equipment. The SDR is used to transmit new and revised Technical Issuance (TI) documentation for non-modification releases. The SSM is used to transmit system hardware, software, firmware and structural modifications. Changes to an Operational Baseline shall be authorized by a CCD. (Refer to the latest version of Order 1800.66.) Modifications not affecting an Operational Baseline that are issued to correct deficiencies shall be authorized with an approved Program Technical Report (PTR) or a Hardware Discrepancy Report (HDR) and disseminated via an SSM. Authorizing documentation numbers CCD, PTR, or HDR shall be listed in the paragraph titled **REFERENCES** of the SDR/SSM/STR by number and title.

a. **SSMs.** The SSM is used to authorize and deliver modifications and/or new features to the NAS. The SSM shall have the following constraints:

(1) Modifications will be authorized based on standard FAA procedures and orders. Authorization for changes will be listed in the paragraph titled **REFERENCES** of the SSM by number and title.

(2) SSMs may be prepared by any of the maintenance organizations for the systems under their responsibility.

(3) The SSMs shall include all necessary information to install and perform a test after modification.

(4) The SSM shall include as attachments to the SSM, all revised change pages to TIs, and manufacture's instruction books affected by the modification.

b. **STRs**. The STR is used to transmit directive and non-directive system information to facilities.

(1) **Non-directive Technical Information SUGGESTS what should be done**. When preparing non-directive technical S/W and H/W information, the paragraphs for **DESCRIPTION OF PROBLEM** and **RECOMMENDED SOLUTION** must be used.

(2) **Directive Technical Information tells what MUST be done**. When preparing directive technical S/W and H/W information, the paragraphs for **DESCRIPTION OF PROBLEM** and **ACTION** must be used.

c. **SDRs**. The SDR is used to authorize and deliver corrections when it is necessary to update, correct, or add information to manufacturer's instruction books or TIs (no system modification involved). If a system modification requires user documentation changes, those change pages shall be delivered by the modifying SSM. Modifications will be authorized based on standard FAA procedures and orders.

312. **REVISIONS/CHANGES TO PREVIOUSLY ISSUED DIRECTIVES**. If it is necessary to change a previously issued directive, a new SSD must be issued. The following applies when considering issuing a new SSD:

a. The **PURPOSE** paragraph shall state why the SSD is being replaced and what action is to be taken at the field level upon receipt of the replacement. Also, the **PURPOSE** paragraph shall call attention to significant paragraph changes.

b. The **WITHDRAWALS** paragraph of the new SSD shall identify the withdrawn SSD. Example: **SSM-VSCS-008, dated 1/5/92 is being replaced by this SSM**.

c. The **TOC** shall be updated to incorporate replacement SSDs as follows:

(1) Listing of replaced SSDs shall remain in the TOC for record purposes. A parenthetical note shall be inserted as a line item immediately below the title of the withdrawn SSD; for example: **(Replaced by SSM-VSCS-010, 2/14/01.)**

(2) The new SSD number, date, and SSD title shall be inserted numerically into the TOC.

(3) The new SSD title shall note what SSD it is replacing. Example: **Replacement of SSM-VSCS-008 dated 1/5/92**.

NOTE: The approval date of the original SSD contained in the TOC shall not be changed.

313.-314. **RESERVED**.

315. **NUMBER AND TITLES FOR DIRECTIVES.**

a. **SSD Documents Issued for Existing Handbooks**. SSD documents (or revisions) to be added to an existing SSD Handbook must use the existing handbook number and title.

b. **New Handbooks**. A new SSD Handbook will be issued after one or more system modifications have been prepared. The handbook shall be complete with a 3-ring binder, cover, foreword, TOC, thumb tab section dividers, and the SSD document(s) (SSM, STR, or SDR) refer to appendix 7.

(1) **Handbook Classification Number**. The handbook classification number shall be in accordance with the subject classification codes established in Order 0000.1. As an option, for EEMs being converted to SSM documentation, the Office of Primary Interest (OPI) may choose to use the current EEM numbering scheme (point, chapter, and change number) in addition to the SSD number. The use of the optional EEM number will be phased out NO LATER THAN June 2003.

(2) **Handbook Title**. The title of a new handbook shall be the following:

SYSTEM SUPPORT DIRECTIVE HANDBOOK (followed by the facility description with the contraction in parenthesis)

NOTE: Facility contractions shall be in accordance with Order 1375.4.

(3) **Handbook Binder**. The SSD shall be contained in a three-ring binder (minimum of 3 inches), and shall be provided by AOS with the initial delivery of a new SSD Handbook. The binder shall have pockets on the front and spine for cover and spine inserts.

(4) **Tab Dividers**. After the initial receipt of the SSD binder, documentation received by the facilities will be inserted into their respective tab sections in order as identified by the TOC.

(5) **Binder Inserts**. The insert shall include the following elements:

(a) Handbook Title (see paragraph 316b).

(b) Handbook Classification Number.

(c) Equipment Title (the system acronym shall be included with the system title).

(d) Footer **Distribution** shall indicate the facility (system) ZAF number.

(e) Maintenance organization (OPR) routing symbol (e.g., AOS-500).

(f) SSD Handbook Approval Date shall be the date of the first page of approved SSD.

(6) **Handbooks Spine Insert**. The handbook spine insert must include the systems four-digit classification code and system acronym. For a sample spine insert refer to appendix 7, Figure 2, Sample SSD Binder Spine.

(7) **Handbook Foreword**. The foreword provides a brief description of the facility (system). It can also provide additional information for understanding and interpreting the modifications delivered by the SSD. It will begin on an odd page and be numbered with lower case Roman numerals beginning with i. The foreword is signed by the Director of Operational Support, AOS-1.

(8) **Table of Contents**. The TOC lists all SSDs that have been issued or are being developed. The TOC is the first attachment to each SSD. There is a TOC cover page explaining what to do with the existing TOC and with the new TOC. The TOC date will be updated with the latest signature date of the releasing SSD.

316. **DOCUMENT IDENTIFICATION NUMBERS AND TITLES.**

a. **SSD Document Number**. The SSD document number shall be used to identify an SSD, and its convention consists of three parts: Directive Type (SSM, STR, or SDR), System Short Acronym, and a Sequence Number (the first SSD of each type starting with 001). This numbering convention is similar to that formerly used by SPBs and STBs (i.e., SPB-VSCS-001, STB-NAD-010, etc.). Specifically, the first three characters, SSM, will make the prefix, followed by the system short acronym of 3-8 characters, followed by a three-digit sequence number. An alphabetic character is used to represent the various events of an SSM. Table 3-1, SSD Numbering Conventions shows examples of the SSD numbering convention.

NOTE: In some cases the "short" system acronym contained within the document number will not represent the more common acronym used with a text body (e.g., MODES versus MODE-S). To alleviate this the expanded (or common) system acronym will be used in the document header field.

TABLE 3-1. SSD NUMBERING CONVENTIONS

SSD Type	Sys. Acronym	Seq. No. + Event	Example
SSM	VSCS	008A	SSM-VSCS-008A
STR	NADIN	010	STR-NAD-010
SDR	CD2	056	SDR-CD2-056

b. **SSD Document Title**. SSD titles are assigned by the AOS SSD author or technical lead. Titles shall be brief but descriptive of the modification involved. Indicate the facility or equipment type in the title. **DO NOT USE** the word **MODIFICATION** in the title.

c. **Equipment Type Number**. When applicable, the equipment type designation (CA or FA type number, or contract number) shall be shown in the SSD title.

317. **SSD TEXT**. All body text should be fully justified, Arial font, 11 point pitch. All mandatory paragraph titles must be used. Instances will occur in which some of the paragraph titles are not applicable, in these instances the notation "Not applicable" shall be used following the title. Titles of additional paragraphs may be chosen at the discretion of the technical lead.

a. Table 3-2, Event Schedule Types, identifies the five different events that can be used in an SSM.

b. Table 3-3, SSM Mandatory Paragraphs, identifies the 25 mandatory paragraph numbers and titles, which shall be used to prepare the text of an SSM. See Appendix 8, SSD Paragraph Heading Reference, for information relative to the type of material to be included in each paragraph.

c. Tables 3-4 and 3-5, STR Mandatory Paragraphs (Directive and Non-Directive), identifies the 13 mandatory paragraph numbers and titles which shall be used to prepare the text of an STR.

d. Table 3-6, SDR Mandatory Paragraphs, identifies the nine mandatory paragraph numbers and titles, which shall be used to prepare the text of an SDR.

(1) The title of the SDR shall indicate that the change is to instruction book(s) of designated equipment.

(2) As needed, the SDR shall provide replacement pages or new pages. When errors or omissions in the equipment instruction book are to be corrected by the contractor, use the guidelines presented in appendix 3 for obtaining the revised manuscript and artwork.

318. **SSM EVENT SCHEDULE.**

a. SSMs have the option to be distributed using an event schedule scheme. The Event Schedule is used to release a system modification in a planned manner. The Event Schedule types are defined in table 3-2.

TABLE 3-2. EVENT SCHEDULE TYPES

EVENT TITLE	EVENT NUMBER
System Modification Notification	I
Preliminary/Draft Documentation	II
System Support Programs	III
Modification Release	IV
Final Documentation	V

b. **Use of an Event Schedule**. This scheme may be used to release H/W and/or S/W modifications when it is necessary to provide facilities ample notification for their planning purposes.

c. **Event Definitions**. The following define each of the five events:

(1) EVENT I – Describes the planned system version and sub-version. This event will include: a list of functional changes to the system, a tentative schedule of deliveries to be included in Events II through V, and the proposed changeover date for the change.

(2) EVENT II – Contains the errata changes (red line) to existing documents, a brief description of the functional changes included in the system delivery, and a suggested method of plans that will assist the facilities in developing their local test plan.

(3) EVENT III – Delivers all software support components and special site adaptation information. This event may also, be used for Key Site testing.

(4) EVENT IV – Used to deliver final operational and functional software, tapes, disks, files and required printouts.

(5) EVENT V – Used to distribute final updates to all revised documents.

SECTION 3. MANDATORY PARAGRAPHS FOR SSDs

319. **SSMs.** The mandatory paragraphs required in the preparation of an SSM are listed in table 3-3. The table lists the paragraphs in the order as they shall appear in the SSM. Paragraphs that are not applicable to the modification shall be marked as "Not applicable." See appendix 8 for paragraph definition and usage.

TABLE 3-3. SSM MANDATORY PARAGRAPHS

PAR. #	PARAGRAPH TITLE
1	Purpose.
2	Distribution.
3	Withdrawals/Cancellations.
4	References.
5	Background.
6	Application.
7	Materials Required.
8	Source of Materials.
9	Special Tools and Test Equipment Required.
10	Procedure to be Performed by.
11	When Modification is to be Performed.
12	Estimated Time Required.
13	Disposition of Surplus Parts.
14	Procedure.
15	Test After Modification.
16	Result of Modification.
17	Changes to Instruction Books.
18	Changes to Installation Drawings.
19	Changes to Recorded Data.
20	Address Changes.
21	Clarification or Comments.
22	Risks.
23	Fallback Procedures.
24	Status Accounting.
25	Recommendations for Changes.

320. **STRs**. The following paragraph numbers and titles as shown in tables 3-4 and 3-5 shall be used in preparing directive and non-directive STRs. The tables list the paragraphs in the order they shall appear in the STR. Paragraphs that are not applicable to the modification shall be marked as "Not applicable." See appendix 8 for paragraph definition and usage.

TABLE 3-4. STR MANDATORY PARAGRAPHS (DIRECTIVE)

PAR. #	PARAGRAPH TITLE
1	Purpose.
2	Distribution.
3	References.
4	Description of Problem.
5	Site Application.
6	Contents.
7	Recommended Action.
8	Software/Hardware Impact.
9	Clarification or Comments.
10	Address Changes.
11	Risks.
12	Fallback Procedure.
13	Status Accounting.

TABLE 3-5. STR MANDATORY PARAGRAPHS (NON-DIRECTIVE)

PAR. #	PARAGRAPH TITLE
1	Purpose.
2	Distribution.
3	References.
4	Description of Problem.
5	Site Application.
6	Contents.
7	Recommended Solution.
8	Software/Hardware Impact.
9	Clarification or Comments.
10	Address Changes.
11	Risks.
12	Fallback Procedure.
13	Status Accounting.

321. **SDRs**. SDRs authorize changes to instruction books. Table 3-6 shows the paragraphs that shall be used in preparing SDRs. The table lists the paragraphs in the order as they shall appear in the SDR. Paragraphs that are not applicable to the modification shall be marked as "Not applicable." See appendix 8 for paragraph definition and usage. The **APPLICATION** paragraph shall reference the applicable instruction book(s) and specify what revisions are to be made to them.

TABLE 3-6. SDR MANDATORY PARAGRAPHS

PAR. #	PARAGRAPH TITLE
1	Purpose.
2	Distribution.
3	Withdrawals/Cancellations.
4	References.
5	Application.
6	Changes to Recorded Data.
7	Address Changes.
8	Risks.
9	Status Accounting.

322. **CONTRACTOR-DEVELOPED SYSTEM MODIFICATIONS**. Instruction book page changes shall be attached to the SSM so that all offices concerned (not just field locations) will receive the corrections. When this is not practical, indicate under the **CHANGES TO INSTRUCTION BOOKS** paragraph where the corrections can be obtained. If it is necessary for the equipment to be returned to the factory for modification, include the factory address and method of shipment (normally by Government Bill of Lading) under the **PROCEDURE TO BE PERFORMED BY** paragraph. Include the date or other scheduling information for shipping under the **WHEN MODIFICATION IS TO BE PERFORMED** paragraph.

323.-325. **RESERVED**.

SECTION 4. PREPARING AND ISSUING SSDs

326. **STANDARDS FOR ABBREVIATIONS AND SYMBOLS**.

a. **Standards**. When preparing SSDs, use the standards for abbreviations and symbols described in paragraph 217i.

b. **Exception to Standards**. When referring specifically to portions of equipment such as switches or controls, use abbreviations as labeled on the equipment. For example, if a switch on a control panel is labeled AFC, it should be referred to in the text of an SSD as AFC rather than "afc" as indicated in AMSE Y1.1.

327. **FIRST PAGE OF AN SSD**. The following first page descriptions apply to the SSM, STR, and SDR. See Figure 3-1, SSM Header Example, for an example of an SSM Header.

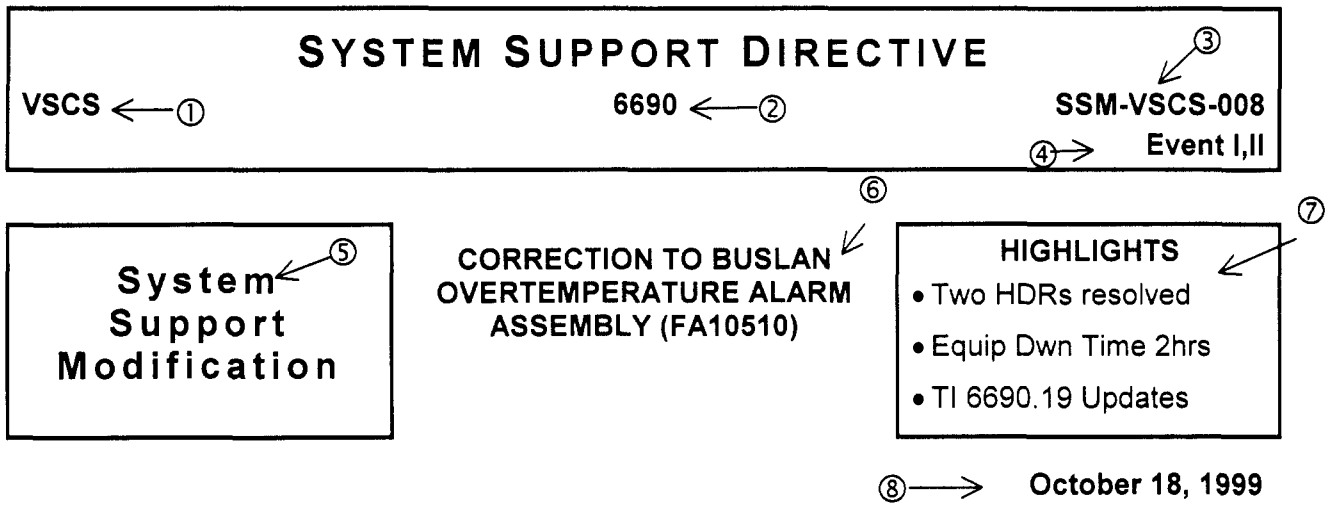


FIGURE 3-1. SSM HEADER EXAMPLE

a. **SSD Header**. The header of the first page of an SSD document shall include the fields identified in Table 3-7, SSD Header Elements.

TABLE 3-7. SSD HEADER ELEMENTS

ELEMENT. #	ELEMENT DESCRIPTION
1	System Acronym.
2	Handbook Classification Number. (optional – point, chapter, and change number)
3	SSD Number.
4	Event Number (SSM Only).
5	SSD Type Box.
6	Document Title.
7	Highlights Box.
8	Signature Approval Date.

(1) **System Acronym**. The system acronym identifies the system as it is known in the NAS. The system acronym shall be located in the upper portion of the directive header bar, and is left justified. The system acronym may be up to 5 characters and can be expanded to the most commonly used version.

(2) **Handbook Classification Number.** The SSD Modification Handbook classification number shall be located in the middle of the header bar under the **SYSTEM SUPPORT DIRECTIVE** title.

(3) **SSD Number**. The SSD number shall be located at the top right of the SSD header bar (right justified). The SSD number format is described in paragraph 316a, **SSD Document Number**.

(4) **Event Number (SSM only)**. The event number (optional) shall be located in the top right corner of the SSD header bar (right justified) below the SSD number. The event number shall be in Roman numeral format. If multiple events are issued with one SSM, commas shall separate the numbers.

(5) **SSD Type Box**. The SSD type box contains the name of one of the SSD document types. The SSD document name shall be centered, horizontally and vertically, in the box and in title case.

(6) **Document Title**. The document title shall be uppercase, bold, and centered.

(7) **Highlights Box**. The highlights box shall be placed on the right-hand side of the page, under the document and event numbers. The box shall provide three bulleted lines (left justified).

(8) **Signature Approval Date**. The signature approval date shall be place under the highlights box. The date format shall be [Month] [Day], [Year]. For example: **October 18, 1999**.

b. **SSD Footer**. Refer to Figure 3-2, SSD First Page Footer.

(1) The Distribution of the SSD shall be identified on the left-hand side of the footer, and identified as **DISTRIBUTION**.

(2) The routing symbol of the office that prepared the SSD shall be placed on the right-hand side of the footer, following **INITIATED BY:**.

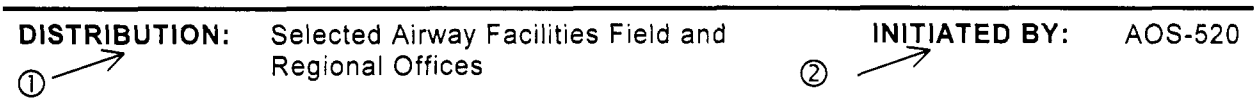


FIGURE 3-2. SSD FIRST PAGE FOOTER

328. **SUBSEQUENT PAGES.**

a. **Paragraphs**. The paragraph title shall be capitalized and bolded. The paragraph shall be full justified and have its second and remaining lines indented (left-hand side margin) under the paragraph title (or the sentence of sublevel paragraphs).

b. **Signature Block**. The signature block shall appear on the last page of the SSD, five lines below the last paragraph, on the left margin. The signature block shall not appear on the last page without at least one paragraph. The format of the signature block shall be as shown in Figure 3-3, SSD Signature Block.

_____ _____

[Director Name] **Date**

[Director Title]

FIGURE 3-3. SSD SIGNATURE BLOCK

NOTE: The Oceanic Branch uses two signature blocks for their documentation.

c. **List of Appendixes and Attachments Box**. The list of appendixes and attachments box shall be formatted as shown in Figure 3-4, Appendixes and Attachments Box.

LIST OF APPENDIXES AND ATTACHMENTS		
ITEM	DESCRIPTION	QUANTITY

FIGURE 3-4. APPENDIXES AND ATTACHMENTS BOX

(1) If there are no appendixes to the SSD, the box can be changed to read List of Attachments.

(2) The first attachment to each SSD is always the TOC.

d. **Page Numbering**. The page number shall be provided on all SSD pages except the first page. Page numbering shall be on the left margin for even pages, and right margin for odd pages and formated as Page #. The SSD cover page is the first odd page. Page numbering is re-sequenced, beginning with Page 1, for each appendix.

e. **SSD Number**. The SSD number shall be in the footer of each page of the SSD except the first page. It shall be on the opposite margin of the page number.

f. **SSD Approval Date**. The SSD approval date shall be included in the header of each SSD page (except the first page). The date shall appear on the right margin for even pages, and left margin for odd numbered pages. The date format shall be [month] [day] [year] (the same as entered on the first page of the SSD see figure 3-1, number 8).

329. **APPENDIXES.**

a. Appendixes to the SSDs shall include such things as lengthy modification procedures, figures, or drawings pertinent to the performance of the modification. Number and title of figures (except tables) shall be at bottom of the figure. Tables should be numbered and titled at the top of the table. The word **APPENDIX** or **APPENDIXES** (e.g., 2 appendixes) whichever is applicable, shall be in the List of Appendixes and Attachments Box header, see figure 3-4. The description/title, and quantity of the appendix(es) being provided shall be included in the List of Appendixes and Attachments Box column labeled DESCRIPTION, and QUANTITY.

b. SSM **PROCEDURE** and **TEST AFTER MODIFICATION** paragraphs should be appended (if 10 pages or more of text) rather than incorporating the lengthy procedures in the main body of the SSM. Use the same basic text format as used in the SSD, for paragraphing, numbering, and indentation. Title the appendixes **MODIFICATION PROCEDURE** and **TEST AFTER MODIFICATION**. Reference the appended material in paragraph 14 and/or 15 of the SSM.

c. SSMs require a MANDATORY appendix 1, which identifies the Test and Evaluation Gold Standards, see sample in appendix 8.

d. The description/title, and quantity of the appendix(es) being provided shall be included in the List of Appendixes and Attachments Box column labeled DESCRIPTION, and QUANTITY.

330. **ATTACHMENTS.** Attachments to the SSD shall include the new SSD TOC, new or replacement pages for the instruction book revision, or directive attachments. Attachments to the SSM/STR/SDR shall follow the appendixes. **ATTACHMENT** or **ATTACHMENTS** shall be in the List of Appendixes and Attachments Box header, see figure 3-4. The description/title, and quantity of the attachment(s) being provided shall be included in the List of Appendixes and Attachments Box column labeled DESCRIPTION and QUANTITY.

a. **Instruction Book Attachments.**

(1) Full Book Revisions. Full book revisions shall be annotated with the SSD number (and event number if applicable) on the top right-hand corner of the cover, and noted in the comments area of the revision history. Each page shall also bear the manufacturer's instruction book number.

(2) Change Pages. Refer to appendix 3 for change page format.

b. **Directive Attachments.**

(1) The attachment number and title shall be on the top of each attachment page. The word (Continued) initial capped and in parenthesis shall follow the attachment title on all pages starting with the second page.

(2) Each page of the directive attachment shall be annotated with the SSD number (and event number if applicable) at the top left-hand corner for even pages and top right-hand corner for odd pages.

(3) Each page of the directive attachment shall be annotated with the signature date on the top right-hand corner for even pages and the top left-hand corner for odd pages (in following the format of the directive).

331. **PRINTING INSTRUCTIONS**. Provide special instructions on the printing request for safety modification chapters (see Order 1320.1, paragraph 308). Provide instructions on punching and special page size (if required) for instruction book revision pages. The punching for the SSDs shall be 3-holes, three-eighths of an inch in diameter, four and one-quarter inch center-to-center and positioned left.

332.-399. **RESERVED**.

APPENDIX 1. DOT/FAA FORMS LISTING

The following DOT/FAA Forms are referenced in this order.

Form #	Title	NSN	Unit of Issue
FAA 1320-1	Order Format	0052-00-516-6003	SH
FAA 1320-2	Order Cover Format	0052-00-655-9004	SH
FAA 1320-4	Change Format	0052-00-565-0003	SH
FAA 1320-5	Record of Changes	0052-00-629-5002	SH
FAA 1320-10	Directive Typing Guide – Odd and Even Page	0052-00-516-7002	SH
AF 1720-1	Distribution Code Sheet		
FAA 6000-8	Technical Performance Record	0052-00-686-0001	PD
FAA 6030-1	Facility Maintenance Log	0052-00-028-5001	PD
FAA 6030-16	Technical Reference Data Records Cover /Transmittal, Sheet	0052-00-895-3000	SH
FAA 6030-17	Technical Reference Data Record	0052-00-895-4000	SH
FAA 6670-1	Multi-Channel Recorder Check Record	0052-00-692-0000	
FAA 6750-3	Localizer Flight Inspection Data Work Sheet	0052-00-844-6000	SH
FAA 6790-4	VOR Ground Check Data Sheet	0052-00-072-5002	

APPENDIX 2. SAMPLE NOTICE OF INTENT TO PUBLISH A NEW OR MAJOR HANDBOOK REVISION

NOTICE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

N XXXX.X

XX/XX/XX

NOTICE OF INTENT

Cancellation Date:XX/XX/XX

SUBJ: SCHEDULED REVISION OF ORDER 6000., MAINTENANCE EQUIPMENT

1. PURPOSE. This notice advises regional Airway Facilities divisions, Airway Facilities field offices, and other selected offices of the intent to publish a major revision of the subject handbook. Information is solicited for use in preparation of the revision.

2. DISTRIBUTION. Indicate to whom this notice is to be distributed, (i.e., the organizational elements, responsible acquisitions offices, and level of interest). Include regional Airway Facilities divisions and all Airway Facilities field offices in the distribution.

3. ACTION.

a. The recipients of this notice who are concerned with the equipment operation, maintenance, or training are requested to furnish, from their own activities or other sources and their recommendations to be used in the revision of the subject handbook. Actual field experience factors should be cited when recommending changes to existing standards, tolerances, key inspection elements, daily performance check requirements (FAA Form 6000 series), maintenance schedules, and procedures. Recommendations should be stated in specific terms. However, it is unnecessary to submit recommendations in the exact handbook format as this will be accomplished during the revision process.

b. Airway Facilities System Management Offices (SMO) should arrange to obtain handbook recommendations and submit them to the regional Airway Facilities division by (insert a date at least 60 days after the expected distribution of the notice).

c. Regional Airway Facilities divisions and other offices not included in paragraph 3b should collect, consolidate, and provide input to AOS-200/300/400/500 by (insert a date 30 days after the date specified in paragraph 3b)

d. Our goal is to distribute the revised handbook during, the *quarter, FY-*. Recommendations submitted to Operational Support (AOS) later than (insert the date specified in paragraph 3c) may be held for future revisions.

4. BACKGROUND. Explain in sufficient detail the need for the revision or new handbook. Cite obsolescence of material, need to convert interim pages to permanent pages, etc.

Program Director for Operational Support

Distribution: (Insert the appropriate organization and level interest codes)

Initiated By: (Preparing Office)

APPENDIX 3. CONTRACTOR-REVISED INSTRUCTION BOOK MANUSCRIPT PAGES FOR FAA USE

1. **CONTRACTOR REVISED INSTRUCTIONS**. Updating of equipment instruction books shall be accomplished by page replacement when errors or omissions are found in the instruction books or when the field implementation of a contractor-developed modification results in a new equipment configuration. These page replacements shall be printed by the Government from contractor-revised manuscript pages and artwork and attached to the SSM or SDR for issuance to holders of the instruction books. Contractor-revised manuscript pages and artwork shall be prepared in accordance with the following:

a. Prepare revised manuscript pages (or camera-ready copy) and artwork in accordance with the specification covering the original instruction book. Ensure that all pages of the instruction book that are affected are revised.

b. Make corrections specific and clear, using the same writing style, symbology, and abbreviations used in the original instruction book. Set off changed text data with revision bars in the margins. Corrected pages get the transmittal number (at the top right-hand corner for odd pages and top left-hand corner for even pages) and signature date on them (the signature date placement is to follow the format of dates already in the instruction book).

c. Provide revised originals of artwork. If the original artwork for the instruction book was submitted previously to FAA for printing and is still available in FAA, this material shall be furnished to the contractor for revision.

d. Provide a reason for the revised material stating in Paragraph 17, Changes to Instruction Books in the SSM, or Paragraph 5, Changes to Recorded Data in the SDR the purpose of the change and the instruction book to which it applies. Each instruction book changed must have a cover sheet with appropriate attachment number assigned, coordinated with the List of Appendixes and Attachments box of the SSD, along with a page control chart showing each page to be removed and replaced.

e. Provide a purpose for the change in the revision/change history of the instruction book, along with a reference to the transmittal sending out the change.

APPENDIX 4. SAMPLE MAINTENANCE HANDBOOK CHANGE

CHANGE

xxxx.xx CHG XX
DATE

MAINTENANCE OF THE
SUBJ: TITLE

1. PURPOSE. This change transmits revised pages to Order XXXX.XX, TITLE, dated _____.

2. DISTRIBUTION. This change is distributed to selected offices and services within Washington headquarters, regional Airway Facilities divisions, the William J. Hughes Technical Center, the Mike Monroney Aeronautical Center, and Airway Facilities field offices having the following facilities/equipment: SYSTEM.

3. EXPLANATION OF CHANGES. Explain why the changes are being made.

4. DISPOSITION OF TRANSMITTAL. Retain the change transmittal after changed pages are filed.

PAGE CONTROL CHART

Remove Pages	Dated	Insert Pages	Dated

Gregg W. Dvorak
Program Director for Operational Support

Distribution: Selected Airway Facilities Field and Regional Offices; ZAF-XXX

Initiated By: AOS-XXX

APPENDIX 5. LIST OF RELATED PUBLICATIONS

The latest editions of the following publications provide guidance to Airway Facilities personnel for use in the performance of their maintenance technical duties. These documents have been distributed to SMO level and should be available there for general reference and use.

1. Order 0000.1, FAA Standard Subject Classification System.
2. Order 1320.1, FAA Directives System.
3. Order 1320.37, Contractor Developed Equipment Instruction Books.
4. Order 1320.41, Review and Validation of Equipment Instruction Book Manuscripts.
5. Order 1375.4, Standard Data Elements and Codes Facility Identification and Supplemental Standards.
6. Order 1720.30, Distribution of Airway Facilities Technical Directives.
7. Order 1800.58, National Airspace Integrated Logistics Support Policy.
8. Order 1800.66, Configuration Management Policy.
9. Order 6000.15, General Maintenance Handbook for Airway Facilities.
10. Order 6032.1, Modification to Ground Facilities, Systems, and Equipment in the National Airspace System.
11. Order 8020.11, Aircraft Accident and Incident Notification, Investigating, and Reporting.
12. Order 8200.1, United States Standard Flight Inspection Manual.

APPENDIX 6. MAINTENANCE HANDBOOK FORMAT

ORDER 6191.1

MAINTENANCE OF STANDARD TERMINAL AUTOMATION REPLACEMENT SYSTEM (STARS)

August 2, 2000

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

Distribution: Selected Airway Facilites Field and Regional Offices **Initiated By:** AOS-410

FIGURE 1. HANDBOOK COVER

RECORD OF CHANGES

DIRECTIVE NO. 6110.8

CHANGE TO BASIC	SUPPLEMENT			OPTIONAL	CHANGE TO BASIC	SUPPLEMENT			OPTIONAL

FAA FORM 1320-5 (6-80) USE PREVIOUS EDITION

FIGURE 2. FORM 1320-5 RECORD OF CHANGES

FOREWORD

1. PURPOSE. This handbook provides guidance and prescribes technical standards, tolerances, and procedures applicable to the maintenance and inspection of (Specify). It also provides information on special methods and techniques which will enable maintenance personnel to achieve optimum performance from the equipment. This information augments information available in instruction books and other handbooks, and complements the latest edition of Order 6000.15.

2. DISTRIBUTION. This directive is distributed to selected offices and services within Washington headquarters, the William J. Hughes Technical Center, the Mike Monroney Aeronautical Center, regional Airway Facilities divisions, and Airway Facilities field offices having the following facilities/equipment: (Specify).

3. CANCELLATION. This paragraph is used in the foreword only when the handbook totally supersedes and cancels another directive.

4. EXPLANATION OF CHANGES. This paragraph shall be used if a cancellation occurs, thereby creating a need to explain the differences between the old and new version.

5. MAINTENANCE AND MODIFICATION PROCEDURE. This is a mandatory paragraph when the handbook concerns AOS maintained equipment, systems, or facilities where AOS provides second level engineering support. It shall take the next available number and be titled and worded as follows:

(a) The Order 6000.15, this handbook, the applicable equipment instruction book, and other applicable handbooks shall be consulted and used together by the maintenance technician in all duties and activities for the maintenance of (Specify). These three documents shall be considered collectively as the single official source of maintenance policy and direction authorized by Operational Support. References located in the appropriate paragraphs of this handbook entitled Chapter 3, Standards and Tolerances, Chapter 4, Periodic Maintenance, and Chapter 5, Maintenance Procedures, shall indicate to the user whether this handbook and/or the equipment instruction book shall be consulted for a particular standard, key inspection element or performance parameter, performance check, maintenance task, or maintenance procedure.

(b) The latest edition of Order 6032.1, Modification to Ground Facilities, Systems, and Equipment in the National Airspace System, contains comprehensive direction concerning the development, authorization, implementation, and recording of modifications to facilities, systems, and equipment in commissioned status. It supersedes all instructions published in earlier editions of maintenance technical handbooks and related directives.

6. FORMS LISTING. This paragraph is used in the foreword only when a form unique to the maintenance or inspection of the particular equipment, system, or facility is required.

7. RECOMMENDATIONS FOR IMPROVEMENT. This paragraph shall be used when soliciting recommendations for improvement. Tear out comment sheets shall be provided in back of the handbook.

Signature of Program Director for Operational Support. Each foreword is signed by the Program Director for Operational Support.

FIGURE 3. FOREWORD FORMAT/PARAGRAPHS

TABLE OF CONTENTS

FIGURE 4. SAMPLE TABLE OF CONTENTS (SHEET 1)

Section 2. OTHER MAINTENANCE TASKS

Chapter 5. MAINTENANCE PROCEDURES

Section 1. PERFORMANCE CHECK PROCEDURES

Section 2. OTHER MAINTENANCE TASK PROCEDRES

Chapter 6. FLIGHT INSPECTION

Chapter 7. MISCELLANEOUS

APPENDIX 1. CERTIFICATION REQUIREMENTS

FIGURE 4. SAMPLE TABLE OF CONTENTS (SHEET 2)

LIST OF ILLUSTRATIONS

LIST OF TABLES

FIGURE 4. SAMPLE TABLE OF CONTENTS (SHEET 3 – END)

CHAPTER 1. GENERAL INFORMATION AND REQUIREMENTS

100. OBJECTIVE. This handbook provides the necessary guidance, to be used in conjunction with information available in instruction books and other handbooks, for the proper maintenance of (Specify).

101. CERTIFICATION. Refer to Order 6000.15 for general guidance on the certification of systems, subsystems, and equipment. Refer to appendix 1 of this handbook for the specific certification requirements of the (Specify) system.

102. AIRCRAFT ACCIDENT. A paragraph entitled Aircraft Accident shall be included in this chapter for handbooks pertaining to facilities, systems, or equipment directly involved in the generation, transmission, processing, display of information, or guidance provided to aircraft and/or air traffic personnel. This paragraph shall refer to the latest edition of Order 8020.11, Aircraft Accident and Incident Notification, Investigation, and Reporting, for the general requirements following an aircraft accident/incident. In addition, this paragraph shall include requirements that are unique to the particular facility, system, or equipment. For example, the handbook on Very-high-frequency Omni-directional Range (VOR) facilities should contain a statement concerning ground checks following an aircraft accident/incident. The general information contained in Order 8020.11 may be supplemented as needed, but the general information should not be repeated in this paragraph.

103.-199. RESERVED.

FIGURE 5. CHAPTER 1 FORMAT/PARAGRAPHS

CHAPTER 2. TECHNICAL CHARACTERISTICS

200. PURPOSE OR FUNCTION. The discussion shall contain information relating to the purpose or function of the system or equipment and, when applicable, how the system or equipment is used in conjunction with other systems or equipment.

201. DESCRIPTION. The discussion shall include a general physical and technical description of the equipment or system as applicable. Where good judgment indicates that various models or configurations of equipment should be described, such information shall be shown for each type of equipment or configuration.

202. THEORY. The discussion shall include sufficient theory of operations of the system or equipment to provide a comprehensive understanding of functions.

203.-299. RESERVED.

FIGURE 6. CHAPTER 2 FORMAT/PARAGRAPHS

CHAPTER 3. STANDARDS AND TOLERANCES

300. GENERAL. This chapter prescribes the standards and tolerances for (Specify), as defined and described in the latest edition of Order 6000.15. All key performance parameters and/or key inspection elements are clearly identified by an arrow (→) placed to the left of the applicable item.

See sample of Standards and Tolerance Table, figure 2-1 of this Order.

301.-399. RESERVED

FIGURE 7. CHAPTER 3 FORMAT/PARAGRAHPS

CHAPTER 4. PERIODIC MAINTENANCE

400. GENERAL. This chapter establishes all the maintenance activities that are required for (Specify) on a periodic, recurring basis and the schedules for their accomplishment. The chapter is divided into two sections. The first identifies the performance checks (i.e., tests, measurements, and observations) of normal operating controls and functions, which are necessary to determine whether operation is within established tolerances/limits. The second section identifies other tasks that are necessary to prevent deterioration and/or ensure reliable operation.

See sample of Performance Checks and Maintenance Tasks Tables, figures 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9, 2-10, 2-11, and 2-12 of this Order.

401.-499. RESERVED.

Section 1. PERFORMANCE CHECKS

Section 2. OTHER MAINTENANCE TASKS

FIGURE 8. CHAPTER 4 FORMAT/PARAGRAPHS

CHAPTER 5. MAINTENANCE PROCEDURES

500. GENERAL. This chapter establishes the procedures for accomplishing the various essential maintenance activities which are required for (Specify) on either a periodic or incidental basis. The chapter is divided into 3 sections. The first section describes the procedures to be used in making the performance checks listed in chapter 4, section 1. The second section describes the procedures for doing the tasks listed in chapter 4, section 2. The third section describes the procedures for doing special tasks, usually nonscheduled and not listed in chapter 4.

Each different procedure described in this chapter shall be a separately numbered paragraph. The following paragraphing scheme is suggested for fully explaining each procedure:

a. **Object.**

b. **Discussion.**

c. **Test Equipment Required.**

d. **Conditions.**

e. **Detailed Procedure.**

501. FAA FORM 6000 SERIES ENTRIES. Order 6000.15 contains guidance and detailed instructions for field utilization of FAA Form 6000 series, as applicable to the (equipment/system/facility). Entries shall be made in accordance with the instructions published in Order 6000.15, (except as otherwise instructed in the subparagraphs to follow). Figure 2-13, is an example of a Technical Performance Record form that is used to record typical entries for normal and unsatisfactory conditions that may be encountered.

There are three sections to this chapter: PERFORMANCE CHECK PROCEDURES – reference chapter 4, section 1, OTHER MAINTENANCE TASKS PROCEDURES – reference chapter 4, section 2, and SPECIAL MAINTENANCE TASKS – procedures that are not mentioned in chapter 4.

502.-599. RESERVED.

Section 1. PERFORMANCE CHECK PROCEDURES

Section 2. OTHER MAINTENANCE TASK PROCEDURES

Section 3. SPECIAL MAINTENANCE TASKS

FIGURE 9. CHAPTER 5 FORMAT/PARAGRAPHS

CHAPTER 6. FLIGHT INSPECTION

600.-699. RESERVED.

a. This chapter is a part of each handbook when the information in Order 6000.15 is inadequate.

b. The contents of this chapter shall not duplicate Order 6000.15. References to Handbook OA P 8200.1 may be included.

FIGURE 10. CHAPTER 6 FORMAT/PARAGRAPHS

CHAPTER 7. MISCELLANEOUS

700. ABBREVIATIONS AND ACRONYMS

The following acronyms, abbreviations, and units are used in this document.

ac alternating current

AF Airway Facilities

BAT Basic Acceptance Test

CCK Common Console Keyboard

DASD Direct Access Storage Device

ED Early Drop

FAA Federal Aviation Administration

GI General Information

HF High Frequency

I/O Input/Output

KVDT Keyboard Video Display Terminal

LAN Local Area Network

MCM Multiple Chip Module

NAS National Airspace System

OC Oceanic Console

PAM Peripheral Adapter Module

RAM Random Access Memory

SAP System Assist Processor

SPS Surveillance Processing System

TFSP Thermal Flight Strip Printer

TP Telecommunications Processor

UPC Universal Processor Controller

VM Virtual Memory

701.-799. RESERVED.

FIGURE 11. SAMPLE CHAPTER 7

APPENDIX 1. CERTIFICATION REQUIREMENTS

1. GENERAL.

This chapter contains certification requirements for surveillance automated flight plan services provided in the En Route oceanic ATC environment, and certification requirements for constituent systems used to provide these services. Refer to Order 6000.15 for general guidance on the certification of services and systems.

2. SERVICES.

Surveillance services provide a means for ATC personnel to determine aircraft position, course, and identification during aircraft operations. This service is certified as ESAFP Service in accordance with tables included in this appendix. ESAFP is a mutually dependent surveillance service, relying on a combination of ATC systems, to provide ATC personnel with a means to determine aircraft identification over the oceans. The service enhances ATC capabilities by linking real-time flight data with flight plan data, and therefore automating the handling of surveillance data to appropriate ATC sectors. It depends on systems used to provide similar services for the En Route environment and on systems used to file, route, update, and terminate flight plans.

3. SYSTEMS.

Centralized, distributed, or back-up surveillance processing systems, and surveillance flight planning systems are utilized to provide these services, Each system is certified as SPS, or SFS, in accordance with this appendix.

4. EXCEPTIONS.

Order 6000.15 permits certifications with exceptions where a system provides somewhat less than its full functional benefit but is still useable; e.g., one processor is taken out of service, yet other processors are still contributing to the en route surveillance service. Outstanding exceptions may be certified in accordance with the following tables for the specific purpose of removing the exceptions.

5. FUTURE SYSTEMS.

For future planning purposes, systems that provide the above services or are used for testing or prototyping shall be certified in accordance with Order 6000.15.

FIGURE 12. SAMPLE APPENDIX 1 OF THE ODAPS MAINTENANCE HANDBOOK (SHEET 1)

TABLE 1. EN ROUTE SURVEILLANCE AUTOMATED FLIGHT PLAN (ESAFP) SERVICE

Service	*Certification Parameter*	*Reference Paragraph*
ESAFP	Knowledge that all constituent systems are certified.	None (go/no go)
	Normal indications on Monitor and Control.	None (go/no go)
	Satisfactory flight data processing and display.	41a and 61a
	Satisfactory KVDT message input and display.	41b and 61b
	Satisfactory Flight Data Entry and Display message input.	41c and 61c
	Satisfactory flight strip printer.	41d and 61d
	Satisfactory interfacility data transfer.	41e, 48g, 48h, 85, 100, and 101
	Successful execution of the ODL linktest command.	49c and 61c
NORMAL CERTIFICATION INTERVAL: Daily **MAXIMUM CERTIFICATION INTERVAL:** 36 hours. **ALLOWABLE EXCEPTIONS:** None. **PERSON RESPONSIBLE FOR CERTIFICATION:** NOM/NAS. **CERTIFICATION ENTRIES IN MAINTENANCE MANAGEMENT SYSTEM (MMS):** ESAFP certified.		

FIGURE 12. SAMPLE APPENDIX 1 OF THE ODAPS MAINTENANCE HANDBOOK (SHEET 2 – END)

APPENDIX 7. SSD HANDBOOK BINDER INFORMATION

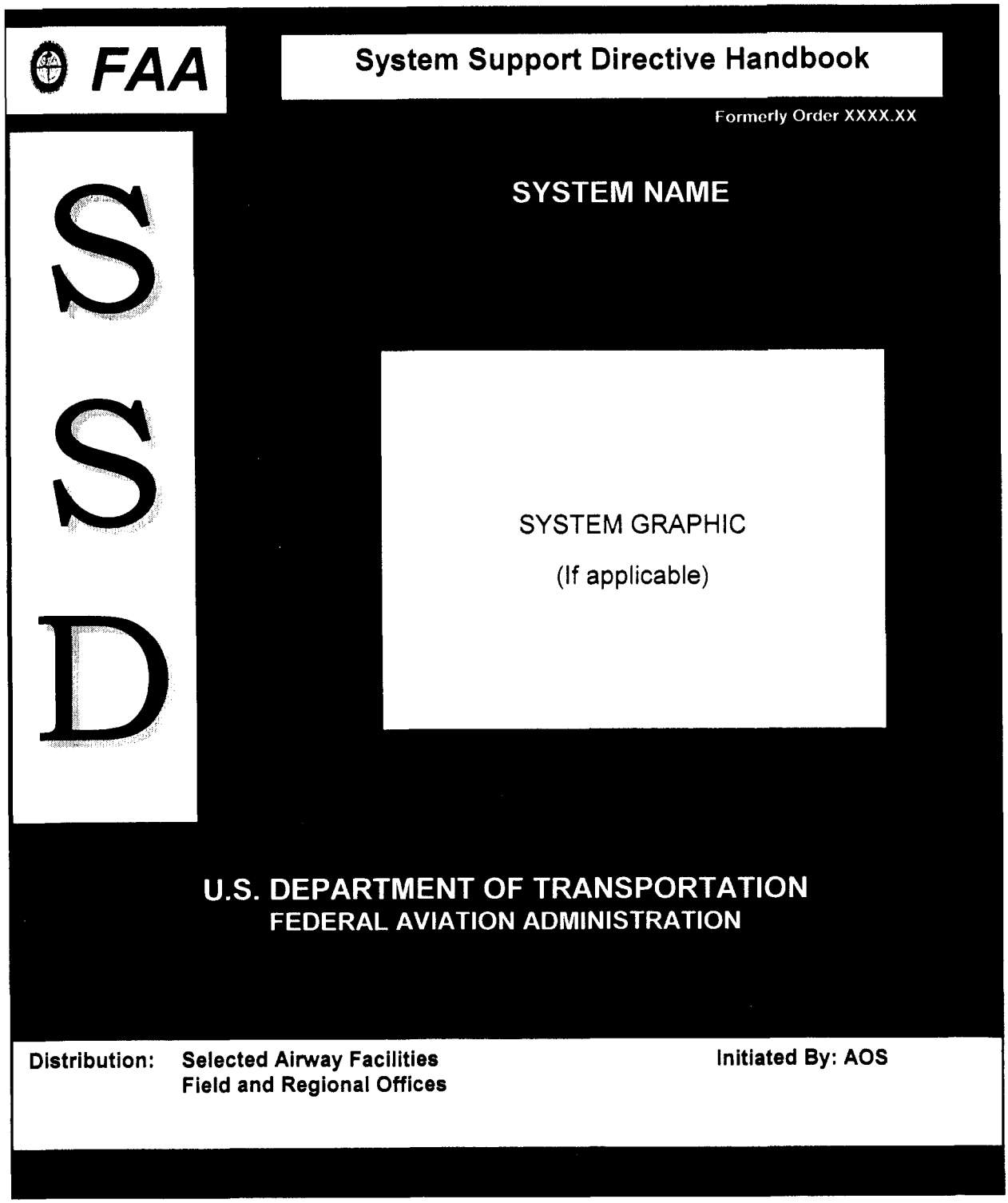


FIGURE 1. SAMPLE SSD BINDER COVER

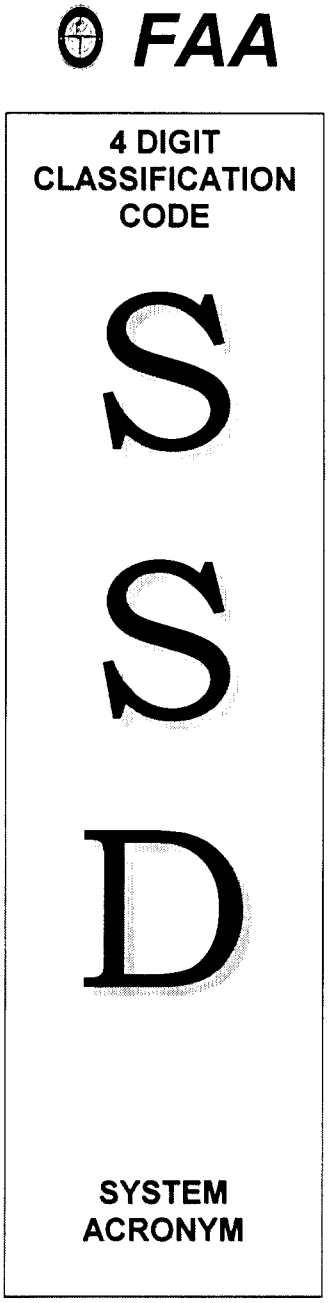


FIGURE 2. SAMPLE SSD BINDER SPINE

FAA

System Support Directive Handbook

Formerly Order XXXX.XX

SSSD

SYSTEM NAME

SYSTEM GRAPHIC

(If applicable)

June 10, 2001

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Distribution:	**Selected Airway Facilities** **Field and Regional Offices**	**Initiated By: AOS-xxx**

FIGURE 3. SAMPLE SSD INSIDE DOCUMENT COVER

FOREWORD

1. PURPOSE.

This handbook contains System Support Directive (SSD) documents issued for the (Specify System).

The (Specify System) is a (give a brief description of specific system).

The following provides information for understanding and interpreting system hardware, software, technical data, and facility modifications delivered by the SSD Handbook. The SSD consolidates, standardizes, and simplifies the various formats and processes used to deliver documentation, bulletins, and software/hardware modifications to the field. The Electronic Equipment Modification (EEM), Plant Equipment Modification (PEM), Site Program Bulletin (SPB), and Site Technical Bulletin (STB), formats have been merged into the SSD. The SSD will define the overall production process, format, and style in which these documents are produced. Eventually all of the older document formats will be merged into one document that is formatted and processed electronically from start to finish and then placed onto an FAA web page on the internet.

2. SSD DISTRIBUTION.

The SSDs are distributed according to Cost Center Codes for selected facilities as listed in the Facilities Service Equipment Profile (FSEP). AOS will now maintain its own site distribution mailing list database taken from the FSEPs and input from the sites.

3. MAJOR CHANGES.

Table 1, Documentation Process Comparison, lists the major changes to the handbook documents. Several older documents; EEMs, PEMs, SPBs, and STBs, are merged into three newer documents System Support Modifications (SSM), System Technical Releases (STR), and System Documentation Releases (SDR) for the major areas of the handbook.

FIGURE 4. SAMPLE SSD FOREWORD (SHEET 1)

TABLE 1. DOCUMENTATION PROCESS COMPARISON

New Document	Replaces	Definition	SSM Handbook Paragraphs
1. SSM	EEMs PEMs SPBs	Used to transmit system hardware (H/W), and/or software (S/W), or PEMs to field facilities. SSM documents are used to authorize and deliver fixes or new features to the facilities.	1. PURPOSE 2. DISTRIBUTION 3. WITHDRAWALS/ CANCELLATIONS 4. REFERENCES 5. BACKGROUND 6. APPLICATION 7. MATERIALS REQUIRED 8. SOURCE OF MATERIALS 9. SPECIAL TOOLS AND TEST EQUIPMENT REQUIRED 10. PROCEDURE TO BE PERFORMED BY 11. WHEN MODIFICATION IS TO BE PERFORMED 12. ESTIMATED TIME REQUIRED 13. DISPOSITION OF SURPLUS PARTS 14. PROCEDURE 15. TESTS AFTER MODIFICATION 16. RESULT OF MODIFICATION 17. CHANGES TO INSTRUCTION BOOKS 18. CHANGES TO INSTALLATION DRAWINGS 19. CHANGES TO RECORDED DATA 20. ADDRESS CHANGES 21. CLARIFICATION OR COMMENTS 22. RISKS 23. FALLBACK PROCEDURES 24. STATUS ACCOUNTING 25. RECOMMENDATIONS FOR CHANGES APPENDIX 1. TEST AND EVALUATION RESULTS SUMMARY

FIGURE 4. SAMPLE SSD FOREWORD (SHEET 2)

TABLE 1. DOCUMENTATION PROCESS COMPARISON (Continued)

New Document	Replaces	Definition	STR Handbook Paragraphs
2. STR Directive	STB	Used to deliver technical system information that does not require a H/W or S/W modification. The STR is used to transmit directive and non-directive H/W and S/W information to facilities. Directive STRs are used when the information or procedure provided is not optional.	1. PURPOSE 2. DISTRIBUTION 3. REFERENCES 4. DESCRIPTION OF PROBLEM 5. SITE APPLICATION 6. CONTENTS 7. RECOMMENDED ACTION 8. SOFTWARE/HARDWARE IMPACT 9. CLARIFICATION OR COMMENTS 10. ADDRESS CHANGES 11. RISKS 12. FALLBACK PROCEDURES 13. STATUS ACCOUNTING
STR Non-Directive	STB	Non-directive STRs are used for informational purposes.	1. PURPOSE 2. DISTRIBUTION 3. REFERENCES 4. DESCRIPTION OF PROBLEM 5. SITE APPLICATION 6. CONTENTS 7. RECOMMENDED SOLUTION 8. SOFTWARE/HARDWARE IMPACT 9. CLARIFICATION OR COMMENTS 10. ADDRESS CHANGES 11. RISKS 12. FALLBACK PROCEDURES 13. STATUS ACCOUNTING

FIGURE 4. SAMPLE SSD FOREWORD (SHEET 3)

TABLE 1. DOCUMENTATION PROCESS COMPARISON (Continued)

New Document	Replaces	Definition	SDR Handbook Paragraphs
3. SDR	EEM SPB	Used to deliver Technical Instruction (TI) documents or change pages. The SDR is used to authorize and deliver fixes or new features to TIs, user documentation and engineering drawings when a systems S/W or H/W is not affected.	1. PURPOSE 2. DISTRIBUTION 3. WITHDRAWALS/ CANCELLATIONS 4. REFERENCES 5. APPLICATION 6. CHANGES TO RECORDED DATA 7. ADDRESS CHANGES 8. RISKS 9. STATUS ACCOUNTING

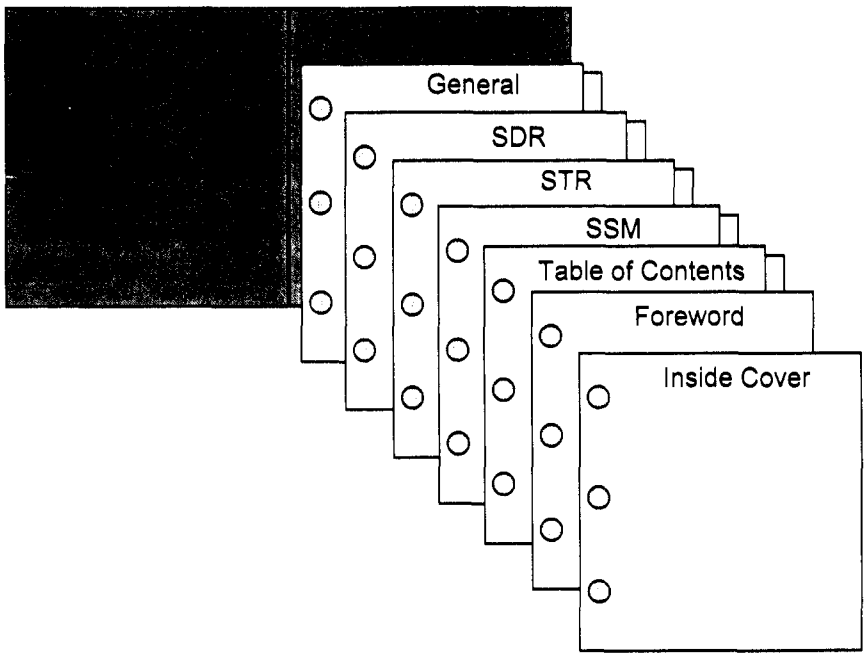
4. AOS POLICY.

The SSM, STR, and SDR are incorporated into the SSD Modification Handbook. Each system within the National Airspace System (NAS) maintained by AOS will use the SSD Modification Handbook format. The (Specify System Acronym and Classification Code) Modification Handbook of the existing legacy system is still valid up through Chapter xx, Change xx, (Title of chapter) dated (date of chapter). All future modifications will use the new SSD format. The SSD Modification Handbook has the same directive authority as did its predecessor (Specify Classification Code) Modification Handbook. This SSD Handbook should be placed next to the legacy (Specify Classification Code) Handbook, currently at each location.

FIGURE 4. SAMPLE SSD FOREWORD (SHEET 4)

5. SSD MODIFICATION HANDBOOK (binder) SECTIONS.

The SSD Handbook is divided into sections as follows:



SSM MODIFICATION HANDBOOK BINDER SETUP

a. Inside Cover: Is the same as the cover of the SSD binder but it will include the date of issuance and the AOS office of primary responsibility.

b. Foreword: Provides information for understanding and interpreting the modifications delivered by the SSD per the agreement with the Professional Airways System Specialist (PASS) union.

c. Table of Contents. The SSD Table of Contents (TOC) is released with each document delivery instead of every six months as it is under the current EEM system. This will provide the user with a more current and actual listing of all the modifications released. The TOC will be included as an attachment to the delivered document and will be divided into three sections, one section for each SSD type (SSM, STR, and SDR). The TOC provides the user with a sequential list of issued SSD documents. Since it is possible that SSD documents may be distributed out of sequence (i.e., sequence number out of order), the TOC will identify un-issued documents with TBD in the Date Issued Column and provide the Document Number and its Title.

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FIGURE 4. SAMPLE SSD FOREWORD (SHEET 5)

d. SSMs. SSM documents are used to authorize and deliver changes or new features to the facilities.

e. STRs. The STR is used to transmit directive and non-directive H/W and S/W information to facilities. A directive STR is used when the information or procedure provided is not optional. The non-directive STR is used for informational purposes.

f. SDRs. The SDR is used to authorize and deliver changes or new features to TIs, user documentation, and engineering drawings when a system's S/W or H/W is not affected.

g. General. Unique documentation per that system.

6. SSD NUMBERING CONVENTION.

The SSD numbering convention consists of three parts: SSD Type (SSM, STR, or SDR), system acronym, and sequence number. By using this numbering for electronic routing and storage, the SSD type, system acronym, and sequence of the document will always be known. The (Specify System) will have one Point of Contact (POC) that will issue these numbers in sequence from the Management Information System (MIS) database, and/or the Data Management System (DMS) database for AOS-200. Examples of the numbering convention are provided below.

SSM	CD2	001	SSM-CD2-001
STR	CD2	001 + rev. A	STR-CD2-001A
SDR	CD2	025	SDR-CD2-025

FIGURE 4. SAMPLE SSD FOREWORD (SHEET 6)

7. SSM EVENT SCHEDULE.

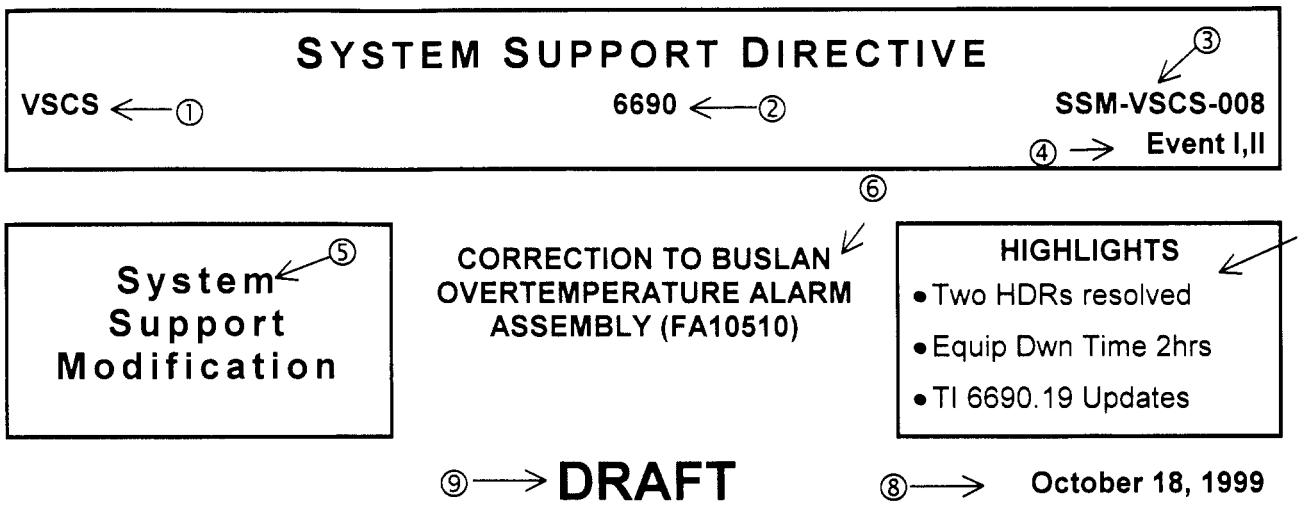
SSMs may be (not required) distributed using an event schedule scheme. The Event Schedule is used to release an SSM in a planned manner. This scheme may be used to release H/W and/or S/W modifications when it is necessary to provide facilities ample notification for their planning purposes. The five events are as follows:

I	System Modification Notification	AOS notifies field of imminent modification release	Start + 1 week
II	Preliminary/Draft Documentation		Start + 5 weeks
III	System Support Programs		Start + 8 weeks
IV	Modification Release		Start + 10 weeks
V	Final Documentation		Start + 12 weeks

FIGURE 4. SAMPLE SSD FOREWORD (SHEET 7)

8. SSD HEADER FORMAT.

The header of the first page of an SSD document includes the fields identified below. The only differences between the SSD documents headers are the SSD Type Box ⑤, which indicates the type of SSD (i.e., SSM, STR, or SDR) and Event Number ④, used only in SSMs (but not required).



① - **System Acronym** – Identifies the system as it is known in the NAS.

② - **SSD Handbook Cross Reference Number** – The four digit identifier for that system (optional – point, chapter, and change number).

③ - **Directive Number** – Issued in sequential order, and is listed in the SSD TOC.

④ - **Event Number** – Identifies what event is being used.

⑤ - **SSD Type Box** – Indicates the type of SSD (i.e., SSM, STR, SDR).

⑥ - **SSD Title** – Briefly describes the SSD.

⑦ - **Highlights Box** – Briefly highlights (4-5 words) the SSD.

⑧ - **Signature Date** – Indicates the SSD is approved for national distribution. This same date will also appear on every page of the SSD, the appendixes, and on attachments associated with the SSD for tracking purposes.

⑨ - **Document Status** – Indicates the status of the SSD. The four types of status are Draft, Working Copy, Advance Copy, and Final Copy. Final Copy, when selected, will not print out on the document. Official SSDs distributed for field use will either be an advance or final copy.

Gregg W. Dvorak

Program Director for Operational Support

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FIGURE 4. SAMPLE SSD FOREWORD (SHEET 8 - END)

ATTACHMENT 1. TABLE OF CONTENTS

Insert the attached Table of Contents behind the Table of Contents tab in the Weather Message Switching Center Replacement (WMSCR) System Support Directive (SSD) Handbook Binder.

FIGURE 5. SAMPLE SSD TOC ATTACHMENT (COVER PAGE FOR FIRST RELEASE OF TOC)

SSM-ASR9-003

ATTACHMENT 1. TABLE OF CONTENTS

Remove	Replace With
Existing Table of Contents from binder.	Attached Table of Contents.

FIGURE 6. SAMPLE SSD TOC ATTACHMENT (COVER PAGE FOR AN EXISTING TOC)

SYSTEM SUPPORT DIRECTIVE (SSD)

TABLE OF CONTENTS

January 18, 2000

SYSTEM SUPPORT MODIFICATIONS (SSM)

SYSTEM TECHNICAL RELEASES (STR)

SYSTEM DOCUMENTATION RELEASES (SDR)

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FIGURE 7. SAMPLE SSD TOC ATTACHMENT

APPENDIX 8. SSD PARAGRAPH HEADING REFERENCE

SYSTEM SUPPORT MODIFICATION (SSM) MANDATORY PARAGRAPHS		
Par.#	Paragraph Title	Description
1	Purpose	Describes the purpose of the modification.
2	Distribution	Identifies the distribution list to be used for dissemination.
3	Withdrawals/Cancellations	Identifies any previous SSMs that are withdrawn as a result of this order.
4	References	Identifies any references.
5	Background	Explains the reason for issuance of the SSM.
6	Application	Identifies the specific equipment type, locations, and/or conditions for which the SSM applies. If necessary use serial numbers or other unique equipment identifiers.
7	Materials Required	Identifies all materials required for site personnel to satisfactorily complete the modification.
8	Source Of Materials	Identifies the method/source from which site personnel should expect to receive materials.
9	Special Tools And Test Equipment Required	Identifies tools and test equipment required to perform the modification or maintain the equipment that would not normally be available at the modification site.
10	Procedure To Be Performed By	Identifies the labor source for implementation of the required SSM activity.
11	When Modification Is To Be Performed	Specifies when modification must be completed. This paragraph should indicate the urgency of modification completion and also identify any associated hardware dependencies.
12	Estimated Time Required	Estimates number of employees and amount of time, in employee-hours, for modification completion. The estimate should include prep time, post-modification testing and documentation updating. Both amounts shall be in numerical format.

SYSTEM SUPPORT MODIFICATION (SSM) MANDATORY PARAGRAPHS		
Par.#	Paragraph Title	Description
13	Disposition Of Surplus Parts	Provides guidance or direction on the disposition of surplus materials resulting from the modification activity.
14	Procedure	Provides the sequential steps for an installer follow to successfully complete and verify the modification, error-free.
15	Tests After Modification	Identifies the post-modification testing required to verify the operational state of systems or units.
16	Result Of Modification	Explains what has been accomplished by modification implementation.
17	Changes To Instruction Books	Informs the recipients of what page changes (if any) to the instruction books are to be handled.
18	Changes To Installation Drawings	Identifies all changed facility installation drawings resulting from installation of the SSM.
19	Changes To Recorded Data	Requests that the site Airway Facilities Modification Record be changed. (Refer to Order 6032.1 and FRDF Order.)
20	Address Changes	Submit facility address, directive copy count, and additions or deletions via cc:mail 9-ACT-AOS530-IMG.
21	Clarification or Comments	Contains any additional clarification and/or comments pertaining to the delivery. This paragraph always contains a reference to the Field Support Line (609) 485-HELP to obtain second level support on the delivery.
22	Risks	Explains the risks associated with installing the software or hardware delivered with this SSM. This paragraph will also discuss the risks associated with not installing the hardware or software delivered with this SSM.

SYSTEM SUPPORT MODIFICATION (SSM) MANDATORY PARAGRAPHS		
Par.#	Paragraph Title	Description
23	Fallback Procedures	Provides procedures for restoring the system to the previous version of software or hardware that was running prior to the installation of the new software or hardware delivered with the SSM. These procedures are to be used if the new version of software or hardware malfunctions and the problem can not be resolved in a reasonable amount of time.
24	Status Accounting	Use the maintenance Management System (MMS) application Log Equipment Modification (LEM) function to report the completion of this modification. (Refer to Orders 6000.48 and 1320.58.)
25	Recommendations For Changes	Forward any recommendations for changes to this directive through normal channels to the proper divisions with their respective routing.
26	Optional	Additional paragraph numbers and titles may be used when warranted. For example, a paragraph titled **SOFTWARE IMPACT** may be needed if the H/W modifications affect S/W and necessitate changes in operational or maintenance programs. An additional paragraph titled **PREREQUISITES** may be needed which would describe any required baseline condition, configurations, or documentation prerequisites.

APPENDIX 1. TEST AND EVALUATION RESULTS SUMMARY

Purpose. This appendix communicates the type of Gold Standard testing that was accomplished on this directive, SSM-ASDE-3-001, Software Version Release 6.2. The scope of the testing conducted on this modification and test results are provided. Any additional unique testing or evaluation beyond the normal modification tests, that needs to be conducted during the field installation, is included in the Test Limitations paragraph.

Scope. This modification has completed development and systems testing. The system test was conducted at the facility with the system modification baseline at software version 6.2 and hardware modifications through 6330.1, CHG 32, Chapter 25. Key site testing of this modification was conducted at two other facilities with the same baseline as the system test.

Results. The system test was conducted at the St. Louis, MO ASDE-3 facility during periods of both peak and normal target load over a period of 4 days with customer representatives validating the user interfaces. All system specialist user screens on the MDTs including the RMM functions were exercised and validated. (Provide any additional details that convey what conditions, length, type of analysis or other factors, which have a bearing on the thoroughness of the testing). The system test was successful and completed on July 1, 2001.

Key site testing of this modification was conducted at the Kansas City, MO and Philadelphia, PA facilities. These two sites were selected to evaluate the modification at facilities that had the least and the maximum number of Display Processor Units. Additionally, both remote and local antenna configurations were evaluated. (Provide any additional details that convey what conditions, length, type of analysis or other factors, which have a bearing on the key site testing.) Both key site tests were successful. The Kansas City test was completed on September 1, 2001 and the Philadelphia test was completed on September 15, 2001.

Test Limitations. This modification was tested and validated in all known configurations and no additional unique testing is required.

OR

Test Limitations. This modification was tested in all variations of the ASDE-3 facilities except the two mosaic configurations. Additional testing as indicated in the below table needs to be conducted as indicated.

Item Number	User (Tester)	On-site Tests	Test Anomalies	Operational Test Impact	Remarks
1.	System Specialist	Perform the split screen capability test in the attachment	Mosaic configuration combines two systems	4 hours of system down time needed	Both AT and system specialists will be required to conduct the test
2.	System Specialist	Perform the independent mode test in the attachment	Mosaic configuration combines two systems	2 hours of system down time needed	Both AT and system specialists will be required to conduct the test.

FIGURE 1. SAMPLE OF MANDATORY SSM APPENDIX 1 (SHEET 1)

DEFINITION OF TABLE COLUMNS:

Item Number – Sequential number referencing a particular On-site Test, Test Anomaly, or Operational Impact.

User – Customer or stakeholder, AT/AF Regional and Field personnel who operate and certify NAS systems.

On-site Tests – Additional tests to be conducted at sites. (Could be conducted by AOS, AT, or AF.)

Test Anomalies – Test is incomplete or there are still outstanding problems.

Operational Test Impact – Operational impact as a result of on-site testing.

Remarks – Clarifying or supporting information.

FIGURE 1. SAMPLE OF MANDATORY SSM APPENDIX 1 (SHEET 2 – END)

SYSTEM TECHNICAL RELEASE (STR) MANDATORY PARAGRAPHS		
Par.#	Paragraph Title	Description
1	Purpose	Describes the purpose of the STR.
2	Distribution	Identifies the distribution list to be used for dissemination.
3	References	Identifies any references.
4	Description Of Problem	Explains the reason for issuance of the STR.
5	Site Application	Identifies the specific equipment type, locations, and/or conditions for which the STR applies.
6	Contents	Identifies the contents.
7	Recommended Action (Directive) or Recommended Solution (Non-Directive)	Describes what action is to be taken. Explains the solution.
8	Software/Hardware Impact	Identifies any impacts to software/hardware.
9	Clarification Or Comments	Contains any additional clarification and/or comments pertaining to the delivery. This paragraph always contains a reference to the Field Support Line (609) 485-HELP to obtain second level support on the delivery.
10	Address Changes	Submit facility address, directive copy count, and additions or deletions via cc:mail 9-ACT-AOS530-IMG.
11	Risks	Explains the risks associated with following the instructions/procedures described in the STR. This paragraph will also discuss the risks associated with not following the instructions/procedures described in the STR.
12	Fallback Procedure	Provides procedures for restoring the system/component to its previous operational state. The state prior to the implementation of the instructions/procedures contained in the STR.

SYSTEM TECHNICAL RELEASE (STR) MANDATORY PARAGRAPHS		
Par.#	Paragraph Title	Description
13	Status Accounting	Use the maintenance Management System (MMS) application Log Equipment Modification (LEM) function to report the completion of this modification. (Refer to Orders 6000.48 and 1320.58.)

SYSTEM DOCUMENTATION RELEASE (SDR) MANDATORY PARAGRAPHS		
Par.#	Paragraph Title	Description
1	Purpose	Describes the purpose of the SDR.
2	Distribution	Identifies the distribution list to be used for dissemination.
3	Withdrawals/Cancellations	Identifies any previous SDRs that will be affected by this delivery.
4	References	Identifies any references.
5	Application	Identifies the specific equipment type, location, and/or conditions for which the SDR applies.
6	Changes To Recorded Data	Requests that the site Airway Facilities Modification Record be changed. (Refer to Order 6032.1 and FRDF Order.)
7	Address Changes	Submit facility address, SSD copy count, and additions or deletions via cc:mail 9-ACT-AOS530-IMG.
8	Risks	Explains the risks associated with following the instructions/procedures described in the SDR. This paragraph will also discuss the risks associated with not following the instructions/procedures described in the SDR.
9	Status Accounting	Use the maintenance Management System (MMS) application Log Equipment Modification (LEM) function to report the completion of this modification. (Refer to Orders 6000.48 and 1320.58.)

APPENDIX 9. ACRONYM LIST

The following acronyms are used in this directive:

AAF – Associate Administrator for Airway Facilities

A/G – Air/Ground

ANSI – American National Standards Institute

AOS – Operational Support

ARTCC – Air Route Traffic Control Center

CCD – Configuration Control Decision

CHG – Change

DMO – Directives Management Officer

DMR – Directives Management Representative

DMS – Data Management System

DPIT – Document Process Improvement Team

EEM – Electronic Equipment Modification

EFI – Electronic Facility Instruction

EG – Engine Generator

FSEP – Facilities Service Equipment Profile

GENOT – General Notice

GPO – Government Printing Office

H/W – Hardware

IFR – Instrument Flight Rules

ILS – Instrument Landing System

IMG – Information Management Group

LEM – Log Equipment Modification

MIS – Management Information System

MMS – Maintenance Management System

NAS – National Airspace System

NCP – NAS Change Proposal

NOT – Notices

NSED – National System Engineering Division

NSN – National Stock Number

OPI – Office of Primary Interest

OPR – Office of Primary Responsibility

PASS – Professional Airways System Specialist

PEM – Plant Equipment Modification

PFI – Plant Facility Instruction

POC – Point of Contact

RCAG – Remote Control Air to Ground

SDR – System Documentation Release

SMO – System Management Office

SPB – Site Program Bulletin

SSD – System Support Directive

SSM – System Support Modification

STB – Site Technical Bulletin

STR – System Technical Release

S/W – Software

TBD – To Be Determined

TI – Technical Issuance

TOC – Table of Contents

UHF – Ultra High Frequency

VHF – Very High Frequency

VOR – Very-high-frequency Omni-directional Range

WMSCR – Weather Message Switching Center Replacement